

CITY OF SARATOGA 6TH CYCLE HOUSING ELEMENT UPDATE, SAFETY ELEMENT UPDATE, 2040 GENERAL PLAN UPDATE, AND ASSOCIATED REZONINGS

Draft Environmental Impact Report
State Clearinghouse No. 2022020707



Prepared for:
City of Saratoga

January 2023

URBAN
PLANNING
PARTNERS
INC.

SARATOGA HOUSING AND SAFETY ELEMENTS, AND 2040 GENERAL PLAN UPDATES

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Prepared for the City of Saratoga

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January 2023

The logo for Urban Planning Partners Inc. is a solid orange square containing the text "URBAN PLANNING PARTNERS INC." in white, uppercase, sans-serif font, arranged in four lines.

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I. INTRODUCTION

The project is being proposed by the City of Saratoga (City), California to comply with California Government Code Sections 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight (8) years to adequately plan for the regional housing needs of residents of all income groups. The project will include (1) adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031), (2) adoption and implementation of the Safety Element Update, (3) adoption and implementation of related updates to the Land Use, Open Space and Conservation, and Circulation and Scenic Highway Elements of the City's General Plan, and (4) adoption of amendments and rezonings necessary to accommodate the City's RHNA. For purposes of this EIR, these actions are together considered a "project" under California Environmental Quality Act (CEQA) regulations.

This chapter of the Environmental Impact Report (EIR) will provide a detailed overview of the project pursuant to CEQA regulations.

A. PURPOSE OF THE EIR

In compliance with CEQA, this Draft EIR describes the environmental consequences of implementation of the City of Saratoga's Housing Element Update, Safety Element Update, 2040 General Plan Updates, and Associated Rezonings (project) This EIR is designed to inform City staff, Planning Commission, the City Council, other responsible and interested agencies, and the public about: (1) the project and its potential environmental consequences; (2) the general plan policies and mitigation measures necessary to lessen or avoid significant adverse impacts; and (3) a reasonable range of feasible alternatives to the project that would reduce environmental impacts. The information contained in this Draft EIR will be reviewed and considered by public agencies prior to deciding to approve, reject, or modify the project.

The City is the lead agency for environmental review of the project, and as such has made the Draft EIR available for public review for the period identified in the Notice of Availability (NOA) published with this document. During this public review period, written comments may be submitted to the City Planning Department at the address indicated on the NOA. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR document.

B. TYPE OF EIR

The State CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a Program EIR pursuant to CEQA Guidelines Section 15168. Section 15168 states:

“A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

1. Geographically,
2. As logical parts in the chain of contemplated actions,
3. In connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program, or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.”

A program-level analysis considers the broad environmental effects of the proposed project. This EIR will be used to evaluate subsequent projects and activities under the proposed project. This EIR is intended to provide the information and environmental analysis necessary to assist public agency decision-makers in considering approval of the proposed project. Because no site-specific development projects are proposed, this document does not include a detailed environmental review of specific development projects. Preparation of a program-level document such as this one may simplify the task of preparing subsequent project-level environmental documents for future proposed development, that may occur after adoption of the General Plan and rezoning for which the details are currently unknown.

Additional environmental review under CEQA may be required for subsequent projects and would be generally based on the subsequent project’s consistency with the General Plan and the analysis in this EIR, as required under CEQA. It may also be determined that some future projects or infrastructure improvements may be exempt from environmental review. When individual subsequent projects or activities under the General Plan and zoning ordinance are proposed, the lead agency that would approve and/or implement the individual project will examine the projects or activities to determine whether their effects were adequately analyzed in this program EIR (CEQA Guidelines Section 15168). If the projects or activities would have no effects beyond those disclosed in this EIR, no further CEQA compliance would be required.

C. PROPOSED PROJECT

The project is being proposed by the City to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups as well as to comply with laws requiring updates to the General Plan and zoning ordinance. The project includes the following components:

1. **Housing Element Update.** Adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031). This component is referred to as the Housing Element Update throughout this EIR.
2. **Safety Element Update.** Adoption and implementation of related updates to the City's Safety Element to address recent changes to State Law. This component is referred to as the Safety Element throughout this EIR.
3. **2040 General Plan Updates.** In addition to the Housing Element Update, the City of Saratoga is updating the Land Use, Open Space and Conservation, and Circulation and Scenic Highway Elements to reflect current conditions, remove inconsistencies, and achieve compliance with current state laws and applicable regional policies. This component is referred to as the "2040 General Plan Updates."
4. **Associated General Plan Amendments.** To implement the Housing Element the project includes the creation and adoption of three new mixed-use land use designations that would allow for mixed-use residential development at greater densities throughout the city than currently permitted. The City also proposes specific plan amendments to change the land use designation of certain Housing Sites.
5. **Associated Rezonings.** To implement the Housing Element the City proposes the creation and adoption of three new mixed-use zoning districts which would allow for mixed-use residential development at greater densities throughout the city than currently permitted.

For purposes of this EIR, these components are together considered a "project" under CEQA regulations.

D. EIR SCOPE

The City of Saratoga published and circulated a Notice of Preparation (NOP) on February 28, 2022. The public comment period for the scope of the EIR was from February 28, 2022, to March 30, 2022. The NOP was posted to the City of Saratoga's website as well as sent to responsible and trustee agencies, organizations, and other interested individuals. A copy of the NOP was also sent to the State Clearinghouse.

A project scoping session was held on March 21, 2022. NOP comments—received from public agencies and concerned citizens—were considered during the preparation of this EIR. Comments received included comments related to: traffic congestion and safety, emergency vehicle access, evacuation access, increased noise, loss of historical ambiance, suggestions for the alternatives analysis, water availability, loss of open land, poor air quality during construction, building heights, waste generated by demolition of existing buildings, school capacity, infrastructure improvements, lack of privacy, the effects of Senate Bill 9, further strain on public services and utilities, concerns with concentrating development in North Saratoga, preserving agricultural land, protecting wildlife and creeks, pedestrian and bicycle safety, contaminated soil, and Native American artifact impacts. The NOP and the written public review comments are included in Appendix A.

The following environmental topics are addressed in greater detail in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, of this EIR:

- A. Aesthetics (Section IV.A)
- B. Air Quality (Section IV.B)
- C. Biological Resources (Section IV.C)
- D. Cultural and Tribal Cultural Resources (Section IV.D)
- E. Geology and Soils (Section IV.E)
- F. Greenhouse Gas Emissions (Section IV.F)
- G. Hazards, Hazardous Materials, and Wildfires (Section IV.G)
- H. Hydrology and Water Quality (Section IV.H)
- I. Land Use, Agriculture, and Forestry Resources (Section IV.I)
- J. Noise (Section IV.J)
- K. Parks and Recreation (Section IV.K)
- L. Population and Housing (Section IV.L)
- M. Public Services (Section IV.M)
- N. Transportation (Section IV.N)
- O. Utilities and Service Systems (Section IV.O)

E. ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the EIR has involved, or will involve, the following general procedural steps:

1. Notice of Preparation

In accordance with CEQA Guidelines Section 15082, the City of Saratoga circulated an NOP of an EIR for the proposed project on February 28, 2022, to trustee and responsible agencies, the State Clearinghouse, and the public. The 30-day public review period for the NOP ended on March 30, 2022, and a scoping meeting was held on March 21, 2022. The NOP and all comment letters received on the NOP are presented in Appendix A.

2. Draft EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project, a description of the environmental setting, an identification of the project's direct and indirect impacts on the environment, mitigation measures for impacts found to be significant, as well as an analysis of project alternatives, identification of significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. Comments received in response to the NOP were considered in preparing the General Plan EIR. Upon completion of the Draft EIR for the 2040 General Plan, the City of Saratoga will file a Notice of Completion (NOC) with the State Clearinghouse of the Governor's Office of Planning and Research to begin the public review period (Public Resources Code Section 21161).

3. Public Notice/Public Review

Concurrent with the NOC, the City of Saratoga will provide a public notice of availability for the Draft EIR, and invite comment from the general public, agencies, organizations, and other interested parties. Consistent with CEQA requirements, the review period for this Draft EIR will be no less than forty-five (45) days. Public comment on the Draft EIR will be accepted in written form. All comments or questions regarding the Draft EIR should be addressed to:

City of Saratoga Community Development Department
Debbie Pedro, Community Development Director
13777 Fruitvale Avenue Saratoga, CA 95070
Email: dpedro@saratoga.ca.us

4. Response To Comments/Final EIR

Following the public review period on the Draft EIR, a Final EIR will be prepared. The Final EIR will respond to written comments received during the public review period and to oral comments made at public hearings. The Final EIR may also include corrections, clarifications, and additional explanatory information that is being added to the EIR.

a. Limitation on Public Comment

Section 21168.6.6(e)(1) requires the following notice be included in both the Draft and Final EIR:

“This EIR is subject to Section 21168.6.6 of the Public Resources Code, which provides, among other things, that the lead agency need not consider certain comments filed after the close of the public comment period for the Draft EIR. Any judicial action challenging the certification of the EIR or the approval of the project described in the EIR is subject to the procedures set forth in Section 21168.6.6 of the Public Resources Code. A copy of Section 21168.6.6 of the Public Resources Code is included in the Appendix to this EIR.”

5. Certification of the EIR/Project Consideration

The City Council is the decision-making body on the project and EIR. If the City Council finds that the Final EIR is "adequate and complete," they may certify the Final EIR in accordance with CEQA. As set forth by CEQA Guidelines Section 15151, the standards of adequacy require an EIR to provide a sufficient degree of analysis to allow decisions to be made regarding the proposed project that take account of environmental consequences.

Upon review and consideration of the Final EIR, the City Council may take action to approve, revise, or reject the project. A decision to approve the project, for which this EIR identifies significant environmental effects, must be accompanied by written findings in accordance with CEQA Guidelines Sections 15091 and 15093. A Mitigation Monitoring and Reporting Program (MMRP) would also need to be adopted in accordance with Public Resources Code Section 21081.6(a) and CEQA Guidelines Section 15097. The MMRP will list all mitigation measures that have been incorporated into or imposed upon the project to reduce or avoid significant effects on the environment. The Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation, in a manner that is consistent with the EIR.

F. ORGANIZATION AND SCOPE

CEQA Guidelines Sections 15122 through 15132 identify the content requirements for Draft and Final EIRs. An EIR must include a description of the environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. The environmental issues addressed in the Draft EIR were established through review of environmental and planning documentation developed for the project, environmental and planning documentation prepared for recent projects located within the City of Saratoga, and responses to the NOP and public scoping meeting comments.

This Draft EIR is organized in the following manner:

Chapter I – Introduction: This chapter briefly describes the proposed project, the purpose of the environmental evaluation, identifies the lead, trustee, and responsible agencies, summarizes the process associated with preparation and certification of an EIR, identifies the scope and organization of the Draft EIR, and summarizes comments received on the NOP.

Chapter II – Summary: Summarizes the impacts that would result from implementation of the project and describes the general plan policies and mitigation measures recommended to avoid or reduce significant impacts.

Chapter III – Project Description: This chapter provides a detailed description of the proposed project, including the location, intended objectives, background information, the physical and technical characteristics, including the decisions subject to CEQA, subsequent projects and activities, and a list of related agency action requirements.

Chapter IV – Environmental Setting, Impacts, and Mitigation Measures: This chapter contains the analysis of environmental topic areas as identified below. Each section within this chapter contains a description of the existing environment as it pertains to the topical area as well as a description of the regulatory environment that may be applicable to the project. Each section also identifies thresholds of significance by which impacts are determined, a description of project-related impacts associated with the environmental topic, identification of appropriate mitigation measures, and a conclusion as to the significance of each impact.

Chapter V – Effects Found Not to be Significant or Less Than Significant: Provides a brief analysis of the topic areas found through the NOP scoping process and preliminary analysis to have no impacts or less-than-significant environmental impacts. The only topics discussed in this chapter are Energy and Mineral Resources.

Chapter VI – Alternatives Analysis: This chapter provides a comparative analysis of the proposed project and three selected alternatives, including the mandatory “No Project” Alternative. CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and avoid and/or lessen any significant environmental effects of the project. The CEQA alternatives include the No Project Alternative, the Preserved Agricultural Land Development Alternative, and the Reduced VMT Alternative.

Chapter VII – CEQA-Required Assessment Conclusions: This chapter evaluates and describes the following CEQA required topics: impacts considered less than significant, significant and irreversible impacts, growth-inducing effects, cumulative impacts, and significant and unavoidable environmental effects.

Chapter VIII – List of Preparers and References: This chapter lists all authors and agencies that assisted in the preparation of the Draft EIR, by name, title, and company or agency affiliation and all the material, documents, reports, etc. used in the preparation of this EIR, delineated by section.

Appendices: This chapter includes the Notice of Preparation and other procedural documents pertinent to the Draft EIR, as well as technical material prepared to support the analysis.

- Appendix A: Notice of Preparation and Comment Letters
- Appendix B: Coast Ridge Ecology Documentation
- Appendix C: Cultural Resources Documentation
- Appendix D: Non-CEQA Level of Services Analysis
- Appendix E: Water Supply Assessment
- Appendix F: 2040 General Plan Update Policies

II. SUMMARY

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental effects of the proposed Saratoga Housing Element, Safety Element, 2040 General Plan Updates, and associated amendments and rezonings. The project site encompasses approximately 9,016 acres of land – including 7,201 acres of land within city limits and 1,815 acres within the City’s Sphere of Influence (SOI). The city of Saratoga is located in northwestern Santa Clara County, between the Santa Cruz Mountains and Silicon Valley. Saratoga is bordered by San Jose to the north and northwest, Campbell to the east, Monte Sereno to the southeast, and the Fremont Older Open Space Preserve and unincorporated county lands to the west. California State Route (SR-) 85 intersects the northeast corner of the city and connects Saratoga to the rest of the San Francisco Bay Area to the north and U.S. Route 101, a major north-south highway, to the east. In addition, SR-9 intersects the southern portion of the city and provides connections to State/regional parks and Santa Cruz to the south.

A. PROJECT OVERVIEW

The project is being proposed by the City of Saratoga (City) to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups, as well as Government Code section 65103 requiring jurisdictions to periodically revise their General Plans. The project includes the following components:

1. **Housing Element Update.** Adoption and implementation of the City’s 6th Cycle Housing Element Update (2023-2031) including the adoption and implementation of General Plan amendments and rezoning to accommodate the City’s Regional Housing Needs Allocation (RHNA). This component is referred to as the “Housing Element Update” throughout this EIR.
2. **Safety Element Update.** Adoption and implementation of related updates to the City’s Safety Element. This component is referred to as the “Safety Element” throughout this EIR.
3. **2040 General Plan Updates.** In addition to the Housing Element Update, the City of Saratoga is updating the Land Use, Open Space and Conservation, and Circulation and Scenic Highway Elements to reflect current conditions, remove inconsistencies, and achieve compliance with current state laws and applicable regional policies. This component is referred to as the “2040 General Plan Updates.”

For purposes of this EIR, these three actions are together considered a “project” under California Environmental Quality Act (CEQA) regulations. Each component of the project is described in more detail in *Chapter III, Project Description*.

B. SUMMARY OF IMPACTS AND MITIGATION MEASURES

The summary that follows provides an overview of the analysis contained in Chapters IV through VII of this EIR. CEQA requires a summary to include discussion of (1) potential areas of controversy; (2) significant impacts and proposed mitigation measures; (3) cumulative impacts; (4) significant and unavoidable impacts; and (5) alternatives to the project. Each of these topics is summarized below.

1. Potential Areas of Controversy

Written letters and verbal comments were received by the City regarding the scope of this EIR during the Notice of Preparation (NOP) (February 28, 2022 to March 30, 2022) public comment period. Comments received included concerns related to: traffic congestion and safety, emergency vehicle access, evacuation access, increased noise, loss of historical ambiance, suggestions for the alternatives analysis, water availability, loss of open land, poor air quality during construction, building heights, waste generated by demolition of existing buildings, school capacity, infrastructure improvements, lack of privacy, the effects of Senate Bill 9, further strain on public services and utilities, concerns with concentrating development in North Saratoga, preserving agricultural land, protecting wildlife and creeks, pedestrian and bicycle safety, contaminated soil, and Native American artifact impacts.

Comments received from public agencies, included Caltrans, the Native American Heritage Commission (NAHC), and the Santa Clara Valley Audubon Society (SCVAS). Caltrans and the NAHC encouraged the use of applicable CEQA regulations related to transportation and tribal consultation. The SCVAS requested the EIR address bird safety, lighting, biodiversity, and development on the Allendale/Chester Housing Site (with respect to loss of open space and agricultural resources).

The issues raised by these comments are addressed in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*. Copies of the NOP and written comments are included in Appendix A.

2. Significant Impacts, Mitigation Measures, and General Plan Policies

Under CEQA, a significant impact on the environment is defined as “...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the

project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.”¹

As discussed in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*, and shown in Table II-1 below, the project would result in several potentially significant impacts. Two impacts related to agriculture resources and transportation were found to be significant and unavoidable, even after mitigation. All remaining impacts identified could be mitigated to a less-than-significant level with implementation of the recommended mitigation measures, with the exception of agriculture resources and transportation.

Impacts that are less than significant or would be reduced to a less-than-significant level with implementation of mitigation measures are identified for the following topics and are fully evaluated in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, of this EIR:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Tribal Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards, Hazardous Materials, and Wildfires
- Hydrology and Water Quality
- Noise
- Parks and Recreation
- Population and Housing
- Public Services
- Utilities and Services Systems

Impacts that are determined to be significant and unavoidable even with the implementation of mitigation measures are identified for the following topic in this EIR and are fully evaluated in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

- Land Use, Agriculture, and Forestry Resources
- Transportation

The environmental topics for which the project would result in no impact or a less-than-significant impact is briefly described in *Chapter V, Effects Found Not to be Significant or Less Than Significant* of this EIR:

¹ Title 14 of the California Code of Regulations, Section 15382; Public Resources Code Section 21068.

- Energy
- Mineral Resources

Cumulative impacts are discussed in each of the topic sections included in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*. The project would not contribute to, or be affected by, any significant cumulative impacts.

3. Alternatives to the Project

Chapter VI, Alternatives Analysis, analyzes three alternatives to the project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The three project alternatives analyzed in *Chapter VI* are as follows:

1. **No Project Alternative:** Under this alternative, the project would not be adopted, and the additional development associated with implementation of the Housing Element Update (1,994 housing units) would not occur. The No Project Alternative assumes that the existing Housing Element would continue to be implemented, and there would be no changes to the existing Safety Element, General Plan, or Zoning Ordinance.
2. **Preserved Agricultural Land Development Alternative:** Under this alternative, the Allendale/Chester Housing Site would not be developed, and the 24 units associated with development at this site would not be developed.
3. **Reduced VMT Alternative:** This alternative assumes additional dwelling units (428 units) would be developed within the Saratoga Office Center and Gateway Sites areas to reduce per capita vehicle miles travelled.

C. SUMMARY OF IMPACTS TABLE

Information in Table II-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with environmental issues discussed in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*, of this EIR. The table is arranged in four columns: (1) impacts; (2) level of significance without mitigation measures, (3) mitigation measures to reduce the level of impact; and (4) level of significance after implementation of mitigation measures. Other than impacts related to agriculture resources and transportation, the EIR found that all potentially significant impacts would be reduced to a less-than-significant level with implementation of mitigation measures. All mitigation measures necessary to ensure that no significant impacts would occur are included in Table II-1 for reference. For a complete description of environmental findings and required mitigation measures, please refer to the specific discussions in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*.

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
A. Aesthetics			
<i>Implementation of the project would not result in any significant aesthetics impacts.</i>			
B. Air Quality			
<p>AIR-1: Construction of residential development under the project would generate criteria air pollutant emissions that could potentially affect regional air quality.</p>	S	<p>AIR-1: <u>Construction Controls for Criteria Air Pollutants.</u> For construction of residential projects with more than 114 single-family units or 240 multi-family units, the project applicant shall retain a qualified air quality consultant to prepare an air quality analysis that identifies measures to reduce the project’s criteria air pollutant and precursor emissions below the Bay Area Air Quality Management District’s (BAAQMD’s) recommended thresholds of significance. Emission reduction measures may include, but are not limited to, the use of off-road equipment with engines that meet the Environmental Protection Agency’s Tier 4 emission standards or engines retrofitted with the most effective Verified Diesel Emissions Control Strategy (VDECS) certified by the California Air Resources Board (CARB). Quantified emissions and identified reduction measures shall be submitted to the City (and BAAQMD if specifically requested) in an air quality analysis for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction.</p> <p>In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) that incorporates all recommendations and measures from the air quality analysis referenced above for all identified criteria air pollutant reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:</p> <ul style="list-style-type: none"> ▪ An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification 	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
<p>AIR-2: Construction of development under the project could expose sensitive receptors to substantial concentrations of TACs and/or PM2.5.</p>	S	<p>number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.</p> <ul style="list-style-type: none"> ▪ A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. <p>AIR-2: The following measures shall be incorporated to reduce this impact:</p> <p><u>AIR-2a: Residential Construction Controls for Diesel Particulate Matter.</u> In the areas defined as needing “Best Practices” or “Further Study” on the BAAQMD’s Planning Healthy Places Map (see https://www.baaqmd.gov/plans-and-climate/planning-healthy-places and Figure IV.B-1), for construction of residential projects with five or more units and commercial development of 10,000 square feet or more with a construction duration greater than 6 months, the project applicant shall apply one of the following two measures:</p> <p>i) The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the Office of Environmental Health Hazard Assessment to determine the health risks to sensitive receptors exposed to diesel particulate matter (DPM) from project construction emissions. The HRA shall be submitted to the City (and BAAQMD if specifically requested) for review and approval. If the HRA concludes that the health risks are at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risks exceed acceptable levels, DPM reduction measures shall be identified to reduce the health risks to acceptable levels. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p>and the approved DPM reduction measures shall be implemented during construction.</p> <p>ii) All off-road diesel equipment shall be equipped with the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.</p> <p>In addition, in the areas mapped as described above, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:</p> <ul style="list-style-type: none"> ▪ An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date. ▪ A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. 	
		<p><u>AIR-2b: Residential Emergency Generators.</u> Require all new emergency generators to use best available control technology for air pollutant emissions, such as using engines that meet the Environmental Protection Agency’s Tier 4 Final emission standards or are battery-powered.</p> <p>Mitigation Measure AIR-2 essentially requires the use of best available control technologies for air pollutant emissions or a quantitative analysis that demonstrates how alternative control</p>	

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
C. Biological Resources			
<p>BIO-1: Construction of development under the project to adversely affect riparian areas and other sensitive habitat areas would vary by location. For those identified development sites located near riparian areas, wetlands, or other sensitive habitat, construction activities can result in accidental spills near streams and wetlands that could lead to potential indirect impacts to water quality which could impact sensitive habitats and special-status species (e.g., California red-legged frog). Artificial light and glare implemented with new development can also impact sensitive bird habitat in riparian areas, potentially influencing nesting behavior. In addition, reflective glass and finishes can result in bird strikes, resulting in bird injury or mortality.</p>	S	<p>BIO-1: Reducing Potential Glare and Impacts to Riparian Areas and Birds. The following mitigation measures shall be included as standard conditions of approval:</p> <p>BIO-1a: Prior to issuance of Building Permits for development projects on parcels immediately adjacent to riparian areas or sensitive woodland areas, the applicant shall submit for staff approval, a Lighting Plan for the project’s exterior and landscaped areas. Proposed exterior lighting shall be limited to full cut off and shielded fixtures with downward direction illumination so as not to shine on adjacent properties, undeveloped areas, or public right-of-way and all light fixtures must be certified by the International Dark Sky Association.</p> <p>BIO-1b: New development projects shall use exterior building materials designed to reduce light and glare impacts. The use of bright colors, and glossy, reflective, see-through or glare-producing building and material finishes is discouraged on buildings and structures. No more than 25 percent of the building's exterior may use bright colors and/or glossy, reflective, see-through, or glare-producing materials. The following types of exterior lighting are prohibited: mercury vapor luminaires, searchlights, sky beams, upward-directed fixtures, and aerial lasers.</p>	LTS
D. Cultural and Tribal Cultural Resources			
<p>CULT-1: Construction of residential development under the project has the potential to adversely affect historic archaeological resources.</p>	S	<p>CULT-1: Accidental Discovery of Cultural Resources. If cultural material is discovered during ground-disturbing activities, all work must halt within 50 feet of the find until the qualified archaeologist can determine the significance. No soil shall be exported from within the 50-foot buffer around the find until a</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
<p>CULT-2: Construction of development under the project has the potential to result in disturbance of sensitive archaeological sites and human remains, including those interred outside of formal cemeteries.</p>	S	<p>determination of significance is made. The qualified archaeologist will then also determine if continued archaeological monitoring, testing, or data recovery is warranted.</p> <p>CULT-2: Archaeological and Human Remains Construction Protocols. The following mitigation measures shall be included as standard conditions of approval for development under the project to avoid potentially disturbing sensitive archaeological sites and human remains.</p> <p><u>CULT-2a: Cultural Sensitivity Training.</u> Prior to the beginning of ground disturbance, a qualified archaeologist shall be retained to develop and deliver a short training presentation that describes what cultural resources may be uncovered during the ground-disturbing phases of the project and actions to take in case of a find. All workers involved in ground-disturbing activities and their direct supervisors must receive this training prior to working on the project.</p> <p><u>CULT-2b: Accidental Discovery of Archaeological Resources.</u> If potential archaeological material is discovered during ground-disturbing activities on proposed housing sites, all work must halt within 50 feet of the find until the qualified archaeologist can determine the significance. No soil shall be exported from within the 50-foot buffer around the find until a determination of significance is made. The qualified archaeologist will then also determine if continued archaeological monitoring, testing, or data recovery is warranted. If an archaeological resource is determined to be of Native American origin, the Tamien Nation tribal chairperson will be notified, and the Tribe invited to comment on the find. The Tribe may request additional consultation at that time.</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p><u>CULT-2c: Halt Construction Activity, Evaluate Find, and Implement Mitigation.</u> In the event that any previously unidentified cultural resource (historic/archaeological/tribal cultural resources) is uncovered during site preparation, excavation, or other construction activity, all such activity shall cease until these resources have been evaluated by a qualified archaeologist and specific measures can be implemented to protect these resources in accordance with Sections 21083.2 and 21084.1 of the California Public Resources Code.</p>	
		<p><u>CULT-2d: Halt Construction Activity, Evaluate Remains, and Take Appropriate Action in Coordination with Native American Heritage Commission.</u> In the event that potential human remains are uncovered during site preparation, excavation, or other construction activity, all such activity shall cease until the remains have been evaluated by the County Coroner within two working days, in accordance with Section 7050.5 of the California Health and Safety Code. If the Coroner determines that the remains are Native American they will contact the Native American Heritage Commission (NAHC) within 24 hours. in accordance with Section 5097.98 of the California Public Resources Code.</p>	
<p>CULT-3: Construction of development under the project has the potential to impact unidentified tribal cultural resources.</p>	<p>S</p>	<p>CULT-3: Implement Mitigation Measures CULT-2.</p>	<p>LTS</p>
<p>E. Geology and Soils</p>			
<p>GEO-1: New development could result in the potential for destruction of paleontological resources.</p>	<p>S</p>	<p>GEO-1: Paleontological Resources during Construction. Should any paleontological resources be encountered during construction activities, all ground-disturbing activities within 100 feet of the find shall be stopped and a qualified paleontologist shall be contacted to assess the situation per Society of Vertebrate Paleontology standards, consult with agencies as appropriate, and make recommendations for the treatment of the discovery if found to be significant. If construction activities cannot avoid the paleontological resources, adverse effects to paleontological resources shall be</p>	<p>LTS</p>

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p>mitigated as follows: If fossils are discovered during excavation, Principal Paleontologist or his/her designated representative will make a preliminary taxonomic identification. The Principal Paleontologist will then inspect the discovery, determine whether further action is required, and recommend measures for further evaluation, fossil collection, or protection of the resource in place, as appropriate. Any subsequent work will be completed as quickly as possible to avoid damage to the fossils and delays in construction schedules. At a minimum, the paleontological staff will assign a unique field number to each specimen identified; photograph the specimen and its geographic and stratigraphic context along with a scale near the specimen and its field number clearly visible in close-ups; record the location using a global positioning system (GPS), record the field number and associated specimen data (identification by taxon and element, etc.) and corresponding geologic and geographic site data (location, elevation, etc.) in the field notes and in a daily monitoring report; stabilize and prepare all fossils for identification, and identify to lowest taxonomic level. Upon completion of fieldwork, all significant fossils collected will be prepared to a point ready for curation. Preparation will include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens will be identified to the lowest taxonomic level, cataloged, analyzed, and delivered to an accredited museum repository for permanent curation and storage. The cost of curation is assessed by the repository and is the responsibility of the Project proponent. A report to be submitted to the repository museum documenting the results of the paleontological mitigation monitoring efforts associated with the Project will be prepared by the Principal Paleontologist. The report will include a summary of the field and laboratory methods, an overview of the Project area geology and paleontology, a list of taxa recovered, an analysis of fossils recovered and their scientific significance, and recommendations.</p>	

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
F. Greenhouse Gas Emissions			
<i>Implementation of the project would not result in any significant greenhouse gas emissions impacts.</i>			
G. Hazards, Hazardous Materials, and Wildfires			
HAZ-1: Contaminated soil or groundwater in the subsurface of residential development projects could pose a risk of exposure to hazardous materials.	S	<p>HAZ-1: The following requirements related to potential hazardous materials contamination would not apply to residential renovations/additions (due to the limited soil disturbance involved with such projects) or properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the City through historic aerial photos, maps, and/or building department records.</p> <p>Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include recommendations for further investigation or remedial action, as appropriate, for hazardous materials contamination. Remedial actions may include, but not necessarily be limited to, the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping,</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p>sumps/vaults), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.</p> <p>If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the Phase I and II ESAs and proposed remedial action plans shall be reviewed by a third party qualified environmental assessment professional selected by the City and funded by the project applicant. The third party qualified environmental assessment professional shall either approve of the proposed remedial actions or provide recommendations for further investigation, additional/alternative remediation actions, and/or regulatory agency oversight for the project site, and the recommendations of the third party qualified environmental assessment professional shall be implemented.</p>	
<p>HAZ-2: Residential development located in areas susceptible to wildfire outside of the Wildland Urban Interface zone could expose people and structures to an increased risk of exposure to wildfire.</p>	S	<p>HAZ-2: The City shall work with CAL FIRE and the Santa Clara County Fire Department to update the City’s WUI zone map to account for the current city limits and the updated fire hazard severity zone mapping being prepared by CAL FIRE.</p>	LTS
<p>HAZ-3: Construction, vegetation management, and maintenance/repair activities associated with residential</p>	S	<p>HAZ-3: The City shall update its Municipal Code to require that contractors or residents performing construction, vegetation management, and/or maintenance/repair activities in the City’s</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
development under the project could expose people and structures to an increased risk of exposure to wildfire.		Wildland Urban Interface (WUI) zone (as established in the most current WUI zone map available through the City’s Planning Department) implement the following measures to minimize the potential for accidental ignition of construction materials and vegetation: 1) store flammable/combustible materials at least 20 feet away from vegetation and buildings; 2) no vehicles or equipment shall be driven or parked in areas where vegetation can contact exhaust systems; 3) spark arrestors shall be fitted on all vehicles and equipment and non-sparking tools/attachments shall be utilized when feasible; 4) work that generates sparks or flame such as metal grinding, cutting, torching, and welding shall only be performed in areas where vegetation/combustible materials have been sufficiently cleared, combustible materials that cannot be moved are protected, and fire watch and post-work inspection is performed in accordance with the Santa Clara County Fire Department’s construction site fire safety requirements; 5) potential spark generating equipment (e.g., mowers, brush cutters, and chainsaws) shall not be used near dry vegetation during periods of heightened wildfire danger including when Red Flag Warnings & Fire Weather Watches are issued by the National Weather Service for the area; 6) an adequate water source and fire extinguishers shall be available nearby at all times for fire suppression; 7) fueling of motorized equipment shall not be performed when the equipment is running or hot, or near other sources of heat/sparks (e.g., vehicle exhaust, cigarettes); and 8) smoking shall not be permitted near areas of dry vegetation or areas of flammable or combustible materials storage.	

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
H. Hydrology and Water Quality			
HYD-1: Development under the project could contribute to the impairment of water quality by trash.	S	HYD-1: The City shall install additional full trash capture systems and/or perform optional trash offsets as necessary to ensure 100 percent trash capture for the city prior to the implementation of development under the project. The City shall implement trash capture activities that account for development under the project to ensure that the city maintains 100 percent trash capture during the operation of developments under the project.	LTS
I. Land Use, Agriculture, and Forestry Resources			
LU-1: Implementation of the project would allow new development in areas of the planning area that are designated Unique Farmland, under Williamson Act contract, or include agricultural zoning.	S	LU-1: <u>Farmland Resources.</u> Implementation of the project would result in housing development on the Marshall Lane Subdivision site and Allendale/Chester Housing Site. The Allendale/Chester Housing Site is currently zoned for agricultural uses; has been identified as Unique Farmland by the Farmland Mapping and Monitoring Program (FMMP). Both sites are currently under Williamson Act Contracts. As such, this impact would result in a significant and unavoidable impact to farmland resources within the city.	SU
J. Noise			
NOISE-1: Construction of residential development under the project could generate a substantial temporary increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	<p>NOISE-1: <u>Construction Noise Controls.</u> The following noise control measures shall be included as conditions of approval for development adjacent to occupied noise sensitive land uses that involve any extreme noise generating construction activities (e.g., pile driving [impact or sonic], rock drilling, and/or other activities generating greater than 100 dBA at 25 feet):</p> <p>(a) Construction Noise Management Plan. Prior to approval of construction-related permits, the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant that contains a set of site-specific noise attenuation measures to reduce construction noise levels for City review and approval. The project</p>	LTS

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
NOISE-2: Construction of residential development under the project could generate excessive groundborne vibration levels.	S	<p>contractor(s) shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:</p> <ul style="list-style-type: none"> ▪ Erect temporary plywood noise barriers between the equipment and adjacent residential buildings; ▪ Implement “quiet” pile driving technology (e.g., silent pile driver or pre-drilling), where feasible in consideration of geotechnical and structural requirements and conditions; ▪ Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible. <p>(b) Public Notification. Property owners and occupants adjacent to project sites shall be notified in advance by writing of the proposed construction schedule before construction activities commence.</p> <p>(c) Noise Disturbance Coordinator. The project applicant shall designate a “noise disturbance coordinator” responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall ensure that reasonable measures are implemented to correct the problem (e.g., potentially including erection of a temporary noise barrier/wall). A telephone number for the disturbance coordinator shall be posted at the construction site.</p>	LTS
		<p>NOISE-2: <u>Vibration Analysis.</u> Where new development is proposed in the vicinity of vibration-sensitive receptors, such as older masonry structures, people (especially residents, the elderly, and sick), and vibration-sensitive equipment. require a screening level vibration analysis. If a screening level analysis shows that the project has the potential to substantially disturb vibration-sensitive activities or result in vibration damage to</p>	

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
K. Parks and Recreation			
<i>Implementation of the project would not result in any significant park and recreation impacts.</i>			
L. Population and Housing			
<i>Implementation of the project would not result in any significant population and housing impacts.</i>			
M. Public Services			
<i>Implementation of the project would not result in any significant public services impacts.</i>			
N. Transportation			
TRANS-1: Implementation of the project would generate VMT per resident that is greater than 85 percent of the countywide average VMT per resident.	S	<p>TRANS-1: <u>VMT Reduction Measures</u>. Because the project would generate a VMT level (17.90 per resident) greater than the threshold (11.15 VMT per resident), it would result in a significant transportation impact on VMT. Therefore, mitigation measures for the project are required to reduce VMT to below the threshold. The TDMs enumerated below would only apply to residential projects of 10 or more units and to non-residential projects of 6,000 square feet or more.</p> <p>TRANS-1a: It is assumed that residential sites that generate or attract fewer than 110 trips per day are considered small projects and would be screened out from further VMT analysis per the OPR guidelines, and mitigation measures would not be applicable to these sites. For sites that would not be screened out as small projects, the Santa Clara County VMT Evaluation Tool should be used to identify measures to reduce VMT to the greatest extent possible. The evaluation tool evaluates a list of selected VMT reduction measures that can be applied to a project to reduce the project VMT. There are four strategy tiers</p>	SU

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p>whose effects on VMT can be calculated with the VMT evaluation tool:</p> <ul style="list-style-type: none"> ▪ Tier 1: Project characteristics (e.g., density, diversity of uses, design, and affordability of housing) that encourage walking, biking and transit uses; ▪ Tier 2: Multimodal network improvements that increase accessibility for transit users, bicyclists, and pedestrians. These improvements include: <ul style="list-style-type: none"> ▪ Increased bike access. ▪ Improved connectivity by increasing intersection density. ▪ Increased transit accessibility. ▪ Traffic calming measures beyond the project frontage. ▪ Tier 3: Parking measures that discourage personal motorized vehicle-trips. These improvements include: <ul style="list-style-type: none"> ▪ Limited parking supply. ▪ Bike facilities. ▪ Tier 4: Transportation demand management (TDM) measures that provide incentives and services to encourage alternatives to personal motorized vehicle-trips. These measures for residential developments include: <ul style="list-style-type: none"> ▪ School pool programs. ▪ Bike share programs. ▪ Car share programs. ▪ Subsidized transit program. ▪ Unbundled parking costs from property costs. ▪ Voluntary travel behavior change program. 	
		<p>The first three strategies—land use characteristics, multimodal network improvements, and parking—are physical design strategies that can be incorporated into the project design. The fourth strategy includes programmatic measures that aim to reduce VMT by decreasing personal motorized vehicle mode share and by encouraging more walking, biking, and riding transit. However, VMT reduction from these measures would vary with each development, and the maximum reduction typically achieved from these measures is approximately 20</p>	

TABLE II-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Before Mitigation Measure	Mitigation Measure	Level of Significance With Mitigation Measure
		<p>percent. This is far less than the average 37.7 percent required. In addition, it may not be possible to apply these standards to projects that are not subject to discretionary review. Therefore, these measures would not be sufficient to reduce the project's significant VMT impact.</p>	
		<p><u>TRANS-1b</u>: The City shall develop a citywide VMT impact fee program. The fee would fund multimodal improvements for safe routes to school, pedestrian improvements like closing sidewalk gaps, widening sidewalks, and adding crosswalks and pedestrian hybrid beacons, bicycle improvements like adding bicycle lanes and bicycle racks, trail improvements, and transit improvements like adding shelters and benches at transit stops in the city. Improved safety and access to alternative modes of travel like biking, walking, and transit have been found to reduce automobile use for several trip purposes like shopping, school pick-up/drop-off, and recreation, and therefore reduce VMT. All new development projects in the city are expected to be required to pay the impact fee. It is not known whether the projects built with the fee would be sufficient to entirely offset the VMT impact of the Housing Element units. Furthermore, the fee is not adopted. Therefore, the impact for projects which do not screen out from VMT impact analysis would conservatively remain significant and unavoidable with mitigation.</p>	

O. Utilities and Service Systems

Implementation of the project would not result in any significant utilities and service systems impacts.

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III. PROJECT DESCRIPTION

This chapter describes the City of Saratoga's 6th Cycle Housing Element Update (Housing Element Update), Safety Element Update, 2040 General Plan Updates, related General Plan updates, and Associated Rezonings together referred to as the "project" or the "proposed project." This chapter includes: a description of the project location and background; the EIR objectives; the project components; as well as the required approvals.

The project includes policies, strategies, and changes to regulations for the purpose of creating a desired future growth and development framework. Many policies and proposed actions included in the Housing Element, Safety Element, 2040 General Plan Updates, related General Plan updates, and Associated Rezonings do not have the potential to create adverse environmental impacts under CEQA. As such, the information presented and described in this chapter more narrowly focuses on aspects of the project that are pertinent to the potential environmental effects.

A. INTRODUCTION

The project is being proposed by the City of Saratoga (City) to comply with California Government Code Sections 65580-65589.8, which require local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups, as well as Government Code section 65103 requiring jurisdictions to periodically revise their General Plans. The project includes the following components:

1. **Housing Element Update.** Adoption and implementation of the Housing Element Update including the adoption and implementation of General Plan amendments and rezoning to accommodate the City's Regional Housing Needs Allocation (RHNA). This component is referred to as the Housing Element Update throughout this EIR.
2. **Safety Element Update.** Adoption and implementation of related updates to the City's Safety Element. This component is referred to as the Safety Element throughout this EIR.
3. **2040 General Plan Updates.** In addition to the Housing Element Update, the City of Saratoga is updating the Land Use, Open Space and Conservation, and Circulation and Scenic Highway Elements to reflect current conditions, amend inconsistencies, and achieve compliance with current state laws and applicable regional policies. This component is referred to as the "2040 General Plan Updates."

For purposes of this EIR, these components are together considered a “project” under CEQA regulations. Each component of the project is described in *Project Components* of this chapter.

B. PROJECT LOCATION

Saratoga is located in northwestern Santa Clara County, between the Santa Cruz Mountains and Silicon Valley as shown in Figure III-1. The City is bordered by San Jose to the north and northwest, Campbell to the east, Monte Sereno to the southeast, and the Fremont Older Open Space Preserve and unincorporated county lands to the west. California State Route (SR-) 85 intersects the northeast corner of the city and connects Saratoga to the rest of the San Francisco Bay Area to the north and U.S. Route 101, a major north-south highway, to the east. In addition, SR-9 intersects the southern portion of the city and provides connections to State/regional parks and Santa Cruz to the south.

The project location and the geographic extent for the environmental analysis consists of approximately 9,016 acres of land. This includes approximately 7,201 acres of land within city limits and 1,815 acres within the City’s Sphere of Influence as shown in Figure III-2.

Recognizing the important role regulatory systems play in the production of housing by the private sector, the State of California has required local jurisdictions to adopt and maintain Housing Elements as part of their General Plan documents since 1969. General Plans serve as a roadmap for communities to use to regulate development within their jurisdiction and must contain at least eight elements as mandated by the State, inclusive of Housing, Land Use, Open Space, and Circulation Elements. The State further requires jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups and comply with new State housing laws. The City of Saratoga is updating the Housing Element of its General Plan for the 2023-2031 planning period and adopting a series of related rezonings and specific plan and General Plan amendments necessary to accommodate the City’s Regional Housing Needs Assessment (RHNA) (as described under *Housing Element Update* of this chapter).

In addition to these mandated Housing Element updates, the City of Saratoga also proposes updates to the Safety Element (see subsection D.2) and minor revisions to three other Elements of their General Plan: the Land Use, Circulation and Scenic Highway, and Open Space and Conservation Elements. These revisions will include minor policy updates and formatting revisions to allow for a more cohesive General Plan document for the City of Saratoga. These revisions are described under subsection D.3 of this chapter and will comprise the City’s 2040 General Plan Updates.



Figure III-1
Regional Location

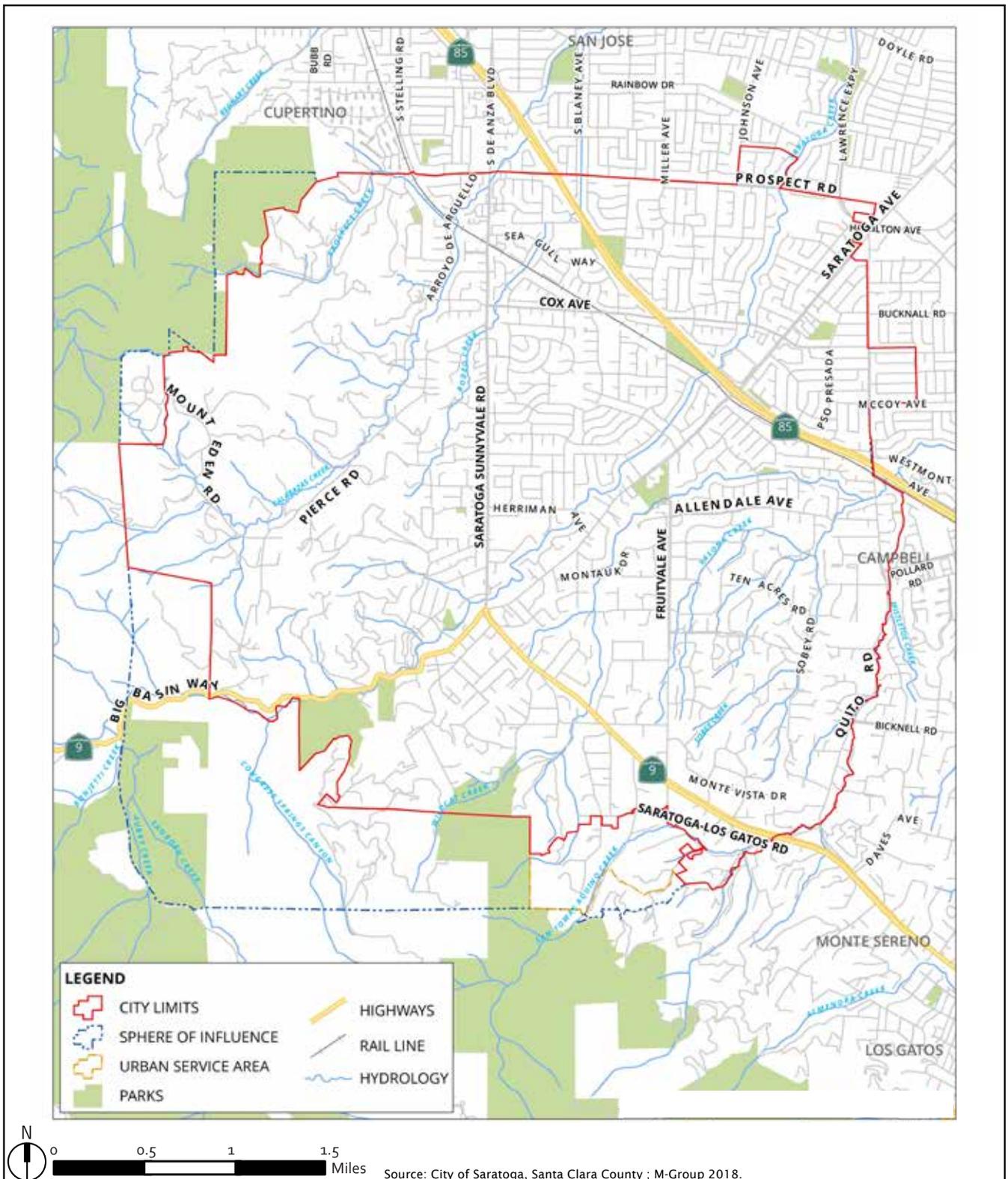


Figure III-2
Saratoga Planning Area

C. PROJECT OBJECTIVES

In accordance with CEQA Guidelines Section 15124, an EIR must present a statement of project objectives. For this EIR, the project objectives include the City of Saratoga's housing goals and policies as required by State law and contained within the Housing Element Update, revised Safety Element goals and broad objectives of the 2040 General Plan Updates. These goals and their objectives are detailed below.

1. Housing Element Update Goals and Policies

a. Goal 1: Housing Production and Variety

A housing stock comprising a variety of housing and tenancy types at a range of prices, within close proximity to services and opportunity, which meets the varied needs of existing and future City residents, who represent a full spectrum of age, income, and other demographic characteristics.

- *Policy 1.1:* Provide adequate capacity to meet the Sites Inventory for Regional Housing Needs Assessment (RHNA).
- *Policy 1.2:* Allow more multi-family housing through rezoning, lot consolidation incentives, and other programs.
- *Policy 1.3:* Incentivize efficient buildings and conservation.

b. Goal 2: Incentivize and Preserve Housing

Programs that conserve housing currently available and affordable to lower-income households, and programs that prevent or reverse deterioration in areas exhibiting symptoms of physical decline.

- *Policy 2.1:* Continue to monitor, track, and encourage preservation of affordable housing at-risk of loss or conversion to market rate housing.
- *Policy 2.2:* Connect owners to resources to rehabilitate and improve the condition of existing affordable housing stock.

c. Goal 3: Removal of Constraints to the Production of Housing

Removal of governmental policies or regulations that unnecessarily constrain the development or improvement of market-rate or affordable housing.

- *Policy 3.1:* Reduce constraints to ADU development process.

- *Policy 3.2:* Periodically review and update the Zoning Ordinance to remove language that constrains development and stay abreast of updates to State law to reduce constraints to emergency shelters, low barrier navigation centers, supportive housing, and group homes.
- *Policy 3.3:* Establish objective design standards to facilitate streamlined project permitting and update existing design guidelines.

d. Goal 4: Access to Housing Opportunities

Promote through community outreach and education housing information and resources designed for persons with special housing needs.

- *Policy 4.1:* Incentivize affordable housing development by leveraging density bonuses.
- *Policy 4.2:* Address the special needs of persons with disabilities, including developmental disabilities, through provision of supportive and accessible housing that allows persons with disabilities to live independent lives.
- *Policy 4.3:* Support extremely low-income households and Saratoga workers through incentive programs.

e. Goal 5: Affirmatively Furthering Fair Housing.

Promote equal opportunity for all residents to reside in the housing of their choice regardless of their special characteristics as protected under State and federal fair housing law.

- *Policy 5.1:* Provide for the production of additional affordable housing through market incentives and improvements and developer partnerships.
- *Policy 5.2:* Improve awareness, access, and use of education, training, complaint investigation, mediation services of the fair housing service provider, particularly in areas sensitive to displacement, low-income, racial/ethnic concentration, disability, or other fair housing considerations.
- *Policy 5.3:* Prohibit discrimination in the sale or rental of housing with regard to characteristics protected under State and federal fair housing laws.

2. Safety Element Update Goals

The goals provided within the updated Safety Element:

- *Goal SAF-1:* A community protected from the impacts associated with land instability and geologic hazards.
- *Goal SAF-2:* Ensure residents and businesses are protected from seismically induced hazards.
- *Goal SAF-3:* Ensure properties are well protected from flooding and flood-induced hazards.

- *Goal SAF-4:* Ensure the community is better equipped to address vulnerabilities associated with urban and wildland fires.
- *Goal SAF-5:* A community that promotes a culture of preparedness and is ready to respond to future natural and human caused hazard events.
- *Goal SAF-6:* A community prepared for future climate related impacts.

3. 2040 General Plan Objectives

The broad goals described in this chapter in *Section D.1, 2040 General Plan Updates*, can be distilled into more focused objectives. The focused project objectives for the 2040 General Plan Updates are as follows:

- Reflect the goals and vision expressed by city residents, businesses, decisionmakers, and other stakeholders;
- Continue to maintain the road network while improving multimodal transportation opportunities;
- Protect natural resources, including air, water, energy, wildlife, and scenery, to ensure a high quality of life for current and future residents;
- Require new growth and development to have adequate access to all essential public facilities and services;
- Maintain fiscal sustainability and continue to provide efficient and adequate public services; and
- Address the general plan requirements of State law.

D. PROJECT COMPONENTS

1. Housing Element Update

The City of Saratoga's Housing Element Update is the component of the City's General Plan that addresses housing needs and opportunities for present and future Saratoga residents through 2031. It provides the primary policy guidance for local decision-making related to housing. The Housing Element of the General Plan is the only General Plan Element that requires review and certification by the State of California.

The Housing Element Update provides a detailed analysis of Saratoga's demographic, economic, and housing characteristics as required by State law. The Element also provides a comprehensive evaluation of the City's progress in implementing the past policy and action programs related to housing production, preservation, conservation, and rehabilitation. Based on community housing

needs, available resources, housing constraints/opportunities, and analysis of past performance, the Housing Element Update identifies goals, objectives, and action programs that address existing and projected housing needs in Saratoga.

a. Regional Housing Needs Allocation

The Regional Housing Needs Allocation (RHNA) process is mandated by California law and requires all local jurisdictions to plan for their 'fair share' of housing units at all affordability levels. The Regional Housing Needs Plan (RHNP) is part of the Association of Bay Area Governments (ABAG) 6th Cycle RHNA, sometimes referred to as the "Draft Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area" covering the period from 2023 to 2031 and assigning housing need allocations to jurisdictions within the nine-county region. These counties are Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. State Housing Element Law requires ABAG to develop a methodology that calculates the number of housing units assigned to each city and county and distributes each jurisdiction's housing unit allocation among four affordability levels.

The City of Saratoga's RHNA for the Housing Element Update is 1,712 residential units. In addition to assigning a total number of units, ABAG categorizes the units for each jurisdiction across four income groups to acknowledge the diversity of housing types necessary to accommodate the region's housing needs. As shown in Table III-1, these income groups include very low-income households, which earn less than 50 percent of the area median income (AMI); low-income households, which earn between 50 and 80 percent of the AMI; moderate-income households, which earn between 80 and 120 percent of the AMI; and above moderate-income households, which earn greater than 120 percent of the AMI.

However, to ensure an ongoing supply of housing during this planning period and to comply with new "no net loss" provisions of Senate Bill (SB) 166, this RHNA is further buffered by an additional 282 housing units (16 percent), totaling 1,994 housing units. This buffer would help allow the City to remain compliant with SB 166 should a Housing Site be developed with nonresidential uses, lower residential densities, or residential uses at affordability levels higher than anticipated by the Housing Element.

In the event a Housing Inventory Site is developed below the density projected in the Housing Element or at a different income level than projected, a jurisdiction must have adequate sites available to accommodate the remaining balance of the RHNA. If a jurisdiction does not have adequate sites, it must identify and potentially rezone additional sites that can accommodate the remaining need.

TABLE III-1 SARATOGA’S REGIONAL HOUSNG NEEDS ALLOCATION (2023-2031)

Income Category	Units	Percent of Total
Very Low-Income (0-50% of AMI)	454	27%
Low-Income (50%-80% of AMI)	261	15%
Moderate-Income (80%-120% of AMI)	278	16%
Above Moderate-Income (>120% of AMI)	719	42%
Total	1,712	100%

Note: AMI = Area Median Income

Source: Final Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031.

Accordingly, the City’s Housing Inventory Sites include an adequate supply of suitable land to accommodate the City’s housing allocation of 1,712 units, including housing for very low-, low-, moderate-, and above moderate-income households. As shown in Table III-2, the City has additional sites which have been identified as surplus sites to provide a RHNA buffer. The Housing Element Update demonstrates that the City has capacity to accommodate 282 housing units beyond its RHNA of 1,712 housing units for a total of 1,994 units, which is equivalent to a 16 percent buffer. Implementation of the project is conservatively assumed to result in 1,994 units. This level of buildout is unlikely but, in order to be conservative, this EIR uses the maximum buildout in order to fully identify and mitigate potential environmental impacts.

TABLE III-2 RHNA BUFFER BY INCOME CATEGORY

Income Category	RHNA Units	Total Units	Surplus (Buffer) Percentage
Very Low-Income (0-50% AMI)	454	503	11%
Low-Income (51%-80% AMI)	261	309	18%
Moderate-Income (81%-120% AMI)	278	318	14%
Above Moderate-Income (>120% AMI)	719	864	20%
Total	1,712	1,994	16%

Source: City of Saratoga Community Development Department, 2022.

b. Housing Sites Inventory

To ensure the provision of adequate land resources necessary to accommodate a jurisdiction’s RHNA, the State requires communities to identify adequate land resources throughout their jurisdiction that could be used to accommodate future housing development. These land resources are referred to as a community’s Housing Sites Inventory. The City of Saratoga’s

Housing Sites Inventory is organized into several categories and summarized below in Table III-3. Figure III-3 shows the location of the sites. The categories of sites in Saratoga are described below.

TABLE III-3 HOUSING SITES INVENTORY SUMMARY

	Very Low-Income Units	Low-Income Units	Moderate- Income Units	Above Moderate- Income Units	Total Units
Pipeline Units	0	9	0	91	100
Pending Projects	0	0	0	62	62
Projected ADUs	144	144	144	48	480
Senate Bill 9 Units	0	0	0	89	89
Vacant Land	0	0	0	57	57
Non-Vacant/Underutilized Land	359	156	174	517	1,206
Total Sites	503	309	318	864	1,994
RHNA	454	261	278	719	1,712
+Surplus/-Shortage	+49	+48	+40	+145	+282

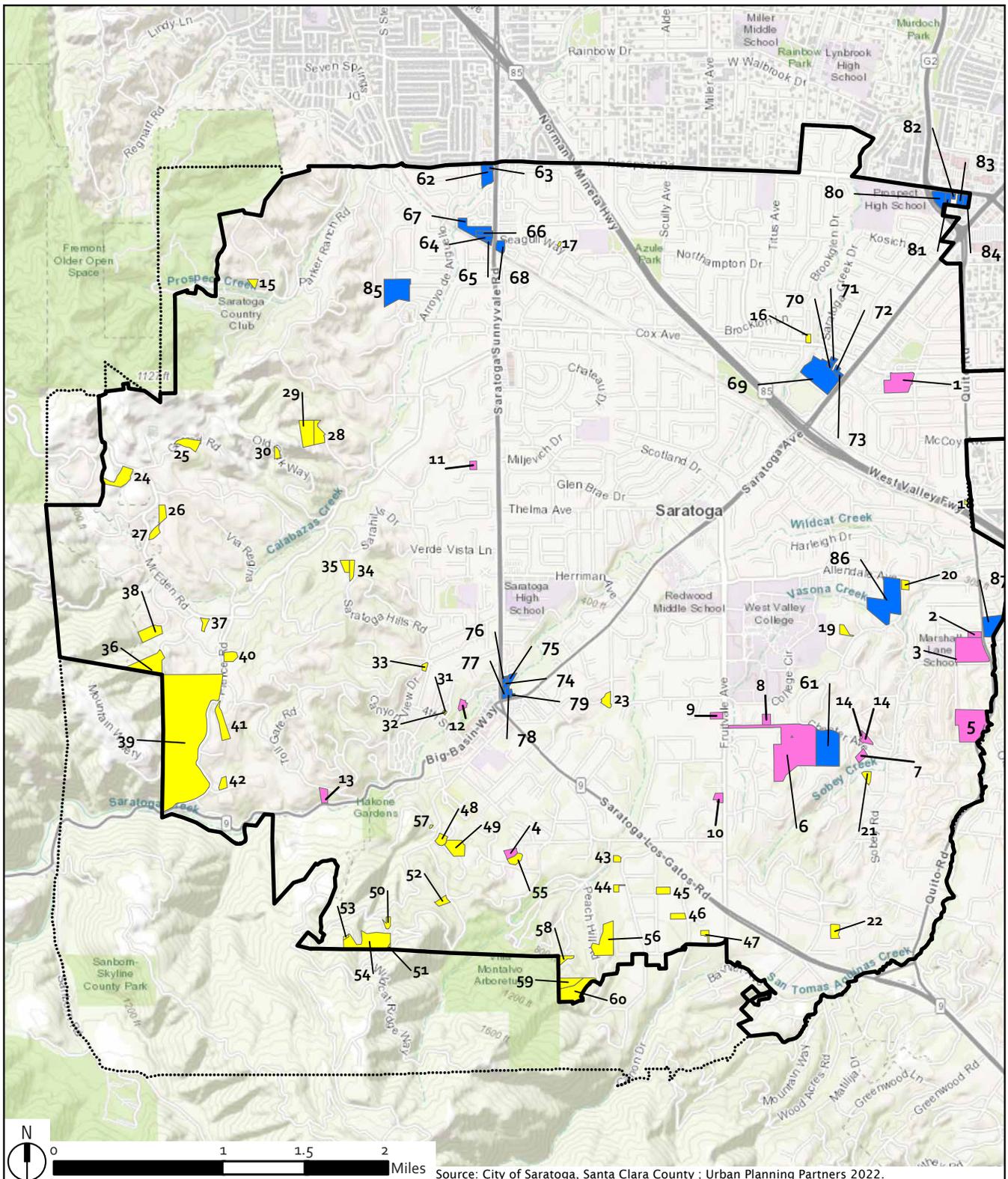
Source: City of Saratoga Community Development Department, 2022.

(1) RHNA Credits

Existing development projects that can count as a credit towards a jurisdiction’s RHNA include pipeline and pending projects, which are projects proposed, approved, or under construction and that have not received a Certificate of Occupancy as of June 30, 2022. Additionally, communities may also account for projected Accessory Dwelling Unit (ADU) development during the planning period. Accordingly, utilizing past building permit data, the Housing Element estimates that 480 ADUs would be constructed over the course of the eight-year planning period; this results in an estimated 60 ADUs each year of the planning period.

Pipeline Projects

Residential projects that have been approved but have not received a certificate of occupancy prior to June 30, 2022, are referred to as “Pipeline Projects.” These projects would be developed during the 2023-2031 planning period and are included below in Table III-4. These developments include the Quito Village development, the Marshall Lane Subdivision, and Hill Avenue single-family home and total 100 residential units, 9 of which would be affordable to low-income households. The Quito Village development received City-issued approval on March 25, 2021. The Marshall Lane Subdivision development was approved on October 6, 2021.



- Saratoga Municipal Boundary
- Saratoga Sphere of Influence
- Vacant Sites
- Non-Vacant Sites
- Pipeline Pending Projects

Figure III-3
Housing Sites

TABLE III-4 APPROVED PIPELINE PROJECTS

Site	APN	Address	Site Name	Very Low-Income	Low-Income Units	Moderate-Income Units	Above Moderate-Income Units	Total Units
1	38912019	19764-18850 Cox Avenue	Quito Village	-	9	-	81	90
2	39702110	18500/18520	Marshall Lane	-	-	-	9	9
3	39702111	Marshall Lane	Subdivision	-	-	-	9	9
4	51718069	20400 Hill Avenue	Hill Avenue Single-Family	-	-	-	1	1
Total				-	9	-	91	100

Source: City of Saratoga Community Development Department, 2022.

Pending Projects

Residential projects that have yet to be approved but will likely be developed during the 2023-2031 planning period are referred to as “Pending Projects” and are included below in Table III-5. These projects total 71 residential units, all of which would only be affordable to above moderate-income households. Nine of the 71 residential units comprising the City’s pending units are associated with requests for lot splits and two-unit development facilitated by the City’s adopted SB 9 provisions.

Projected SB 9 Units

In compliance with SB 9 (2021), the City of Saratoga adopted SB 9 provisions that allow for the by-right ministerial review of urban lot splits and/or two-unit development requests on single-family residentially zoned parcels in the city. In addition to the 43 pending housing units associated with the 23 existing applications for SB 9 lot split requests (as of October 2022), based on those applications, the City anticipates a total of 80 SB 9 residential units to be developed during the 6th cycle planning period. The City anticipates that most of the SB 9 applications are most likely to occur in areas zoned R1-40,000 and R1-20,000. Accordingly, when projecting the number of SB 9 residential units to be accommodated over the 6th cycle planning period, the City’s Site Inventory considers the number of parcels in the city presently zoned for lot sizes equivalent to the R-1-40,000 district. These include 1,764 parcels zoned R-1-40,000 and 580 parcels zoned R-1-20,000.

TABLE III-5 PENDING PROJECTS

Site #	APN	Address	Site Name	Very Low-Income	Low-Income Units	Moderate- Income Units	Above Moderate-Income Units	Total Units
5	39705028	14521 Quito Rd	Quito Vessing Subdivision	-	-	-	10	10
6	39712012 39712019 39740006	14500 Fruitvale Ave	Saratoga Retirement Community	-	-	-	52	52
7	39704104	14564 Chester	SB 9 Application	-	-	-	1	1
8	39713011	19315 San Marcos	SB 9 Application	-	-	-	1	1
9	39717007	14451 Fruitvale	SB 9 Application	-	-	-	1	1
10	39718027	14805 Fruitvale	SB 9 Application	-	-	-	1	1
11	50319073	20615 Leonard	SB 9 Application	-	-	-	1	1
12	50323066	20625 Brookwood	SB 9 Application	-	-	-	2	2
13	50355058	21282 Toll Gate	SB 9 Application	-	-	-	1	1
14	39703072/079	14528 Chester	SB 9 Application	-	-	-	1	1
Total				-	-	-	71	71

Source: City of Saratoga Community Development Department, 2022.

Given the substantial number of parcels zoned for lot sizes which correspond to current SB 9 applications lot sizes received by the City, a total of 80 residential units are anticipated to be accommodated throughout the 6th cycle planning period by SB 9 facilitated requests.

Accessory Dwelling Units (ADUs)

In addition to pipeline and pending projects, a community may also count ADU development projected to occur during the 2023-2031 planning period towards their RHNA requirements. To do so, communities must analyze historic building permit trends, over the last several years, to accurately identify a reasonable projection of ADUs to be developed over the planning period. This analysis considers the various California State laws passed since 2017 that are intended to encourage ADU development, as well as local efforts on behalf of the City of Saratoga to promote ADU development.

The City of Saratoga analyzed the issuance of building permits for ADUs between the years 2018 to 2021. In the year 2018, the year following significant State laws pertaining to ADUs, the City issued a total of 16 ADU building permits, in 2019 this number increased by 50 percent to 24 ADU building permits. In 2020, building permits for ADUs increased by 183 percent compared to 2019 with 68 ADU building permits being issued. In 2021, ADU permits leveled out at 69. Due to the City's experienced trends in ADU building permits, as well as the various ADU policies and programs proposed as part of this update to encourage development of ADUs throughout the city, the City of Saratoga assumes an average of 60 ADU building permits to be issued each year of the 6th cycle planning period. This equates to a total of 480 dwelling units planned to be constructed over 8 years.

Due to their co-location on existing residential lots, and smaller building footprints, typically ranging in size between 400 and 1,000 square feet, ADUs are generally considered to serve as affordable-by-design housing options in communities. However, due to a variety of local market factors, the level of affordability of ADU development may vary by community. The City of Saratoga's proposed distribution of anticipated ADU development across affordability levels is consistent with the Technical Memorandum "Affordability of Accessory Dwelling Units" issued by ABAG on September 8, 2021. Thirty percent of anticipated ADU developments, or 144 ADUs are anticipated to be developed as affordable to "very low-income," "low-income," and "moderate-income" households respectively, and 10 percent, or 48 ADUs, are anticipated to be developed as affordable to "above moderate-income" households. To encourage the development of ADUs at various affordability levels, the City has adopted a one-time 10 percent increase in site coverage and allowable floor area for deed restricted ADUs that are made available to lower-income households. Additionally, as part of the City's FY 2022-2023 budget, the City plans to further incentivize ADU production across a variety of income groups by modifying the City's adopted Fee Schedule to eliminate all planning, public works, and building fees related to ADUs deed restricted for lower-income households.

(2) Vacant and Non-Vacant Sites

Following the accounting of pipeline and pending projects and ADU projections that can serve as credits towards a community's RHNA, jurisdictions must demonstrate their ability to accommodate the remainder of their RHNA through land resources. The Sites Inventory includes both vacant and underutilized properties throughout the city which have been identified for potential future residential development or redevelopment. Conservative assumptions were used to estimate the realistic capacity of each site.

Vacant Land

Most of the vacant land resources in the City of Saratoga are located in hillside areas of the city. Lands within the hillside areas of the city are typically constrained in terms of development

intensity due to the steep slope of several hillside lots, unstable soils associated with sloped lots, and other environmental and safety concerns related to the city's unique topography. The city's vacant land resources identified as suitable for accommodation of portions of the city's RHNA are listed below in Table III-6. These sites total 149.8 acres and are anticipated to accommodate development of a total of 57 dwelling units, which would most likely be affordable to above moderate-income households.

Please note several "vacant" parcels throughout the city that were identified as suitable for residential development are not included within this subsection and are instead included within the "Non-Vacant (Underutilized) Land" subsection of this section due to their proposed consolidated development along with non-vacant parcels.

Non-Vacant/Underutilized Land

The City of Saratoga's non-vacant/underutilized land resources total 62.5 acres of land and are anticipated to accommodate a total of 1,206 residential units of the city's RHNA. There are few opportunities for new housing as the city is built out with 95 percent single family homes. The most viable opportunities for new housing development on non-vacant lands would occur in commercial or professional and administrative parcels. These non-vacant land resources are categorized into nine housing sites throughout the city. While some sites are comprised of just one single parcel, others are comprised of several individual parcels that are anticipated to be eventually consolidated for future residential redevelopment. Non-vacant housing sites were identified based on a variety of factors including but not limited to:

- Proximity to development trends of similar use and intensity.
- Observed underutilization of sites, measured through an evaluation of consolidated, sitewide improvement-to-land ratios which compare the value of present physical improvements on a site to the present value of the land itself. In the commercial real estate market, when land costs are disproportionately larger than the value of physical improvements on a site, land is considered "underutilized." For analysis purposes, improvement to land ratio values below 1.0 are considered to represent some degree of underutilization of sites. An improvement to land ratio value above 1.0 represents sites that are not considered "underutilized." Additionally, a visual survey of Housing Sites was conducted in Spring 2022 and identified several vacancies in non-vacant commercial sites included within the city's Housing Sites Inventory.

III. PROJECT DESCRIPTION

TABLE III-6 VACANT SITES

Site #	APN	Address	Acres	General Plan Designation	Existing Zoning District	Max. Density Permitted	Realistic Capacity
15	36631006	Prospect Rd	0.69	RHC	HR	0.5	1
16	38647040	12788 Brookglen Ct	0.60	M-12.5	R-1-12,5	3.48	1
17	38652008	Seagull Wy	0.14	M-10	R-1-10,000	4.35	1
18	38919031	Sousa Ln	0.16	M-10	R-1-10,000	4.35	1
19	39701050	14171 Chester Av	0.99	RVLD	R-1-40,000	1.09	1
20	39702109	Allendale Av	0.92	RVLD	R-1-40,000	1.09	1
21	39704086	Spring Brook Ln	0.97	RVLD	R-1-40,000	1.09	1
22	39708025	19020 Monte Vista Dr	1.56	RVLD	R-1-40,000	1.09	1
23	39724105	18935 Hayfield Ct	1.34	RLD	R-1-20,000	2.18	1
24	50310072	22700 Mt Eden Rd	3.69	OS-H	HR	0.05	1
25	50312029	Edencrest Ln	2.32	RHC	HR	0.5	1
26	50313117	22551 Mt Eden Rd	1.39	RHC	HR	0.5	1
27	50313148	Mt Eden Rd	1.10	OS-H	HR	0.05	1
28	50315044	Old Oak Wy	2.39	RHC	HR	0.5	1
29	50315045	Land Only	4.26	RHC	HR	0.5	1
30	50315080	Old Oak Way	0.69	RHC	HR	0.5	1
31	50326026	Wildwood Wy	0.09	M-10	R-1-10,000	4.35	1
32	50326027	Wildwood Wy	0.09	M-10	R-1-10,000	4.35	1
33	50327081	Elva Av	0.47	M-10	R-1-10,000	4.35	1
34	50329036	Saratoga Hills Rd	1.09	RVLD	R-1-40,000	1.09	1
35	50329068	Saratoga Hills Rd	1.09	RVLD	R-1-40,000	1.09	1
36	50331067	21794 Heber Way	5.96	RHC	HR	0.5	1
37	50331078	Mt Eden Rd	0.77	RHC	HR	0.5	1
38	50331088	13947 Albar Ct	3.20	RHC	HR	0.5	1
39	50346005	Pierce Rd	72.69	RHC	HR	0.5	12

TABLE III-6 VACANT SITES

Site #	APN	Address	Acres	General Plan Designation	Existing Zoning District	Max. Density Permitted	Realistic Capacity
40	50368002	14190 Palamino Wy	1.50	RHC	HR	0.5	1
41	50372014	14805 Masson Ct	2.96	RHC	HR	0.5	1
42	50375016	Congress Hall Ln	1.00	RHC	HR	0.5	1
43	51001012	15139 Park Dr	0.58	RLD	R-1-20,000	2.18	1
44	51001049	Hume Dr	0.55	RLD	R-1-20,000	2.18	1
45	51003004	15230 Pepper Ln	1.22	RVLD	R-1-40,000	1.09	1
46	51004001	Bellecourt	1.11	RVLD	R-1-40,000	1.09	1
47	51005034	Glen Una Dr	0.74	RVLD	R-1-40,000	1.09	1
48	51713030	16075 Cuvilly Wy	1.23	RVLD	R-1-40,000	1.09	1
49	51713042	16080 Cuvilly Wy	3.24	RVLD	R-1-40,000	1.09	1
50	51714026	Kittridge Rd	0.75	RHC	HR	0.5	1
51	51714059	Quickert Rd	0.17	RHC	HR	0.5	1
52	51714081	Norton Rd	1.02	RVLD	R-1-40,000	1.09	1
53	51714086	Belnap Dr	0.19	RHC	HR	0.5	1
54	51714087	20888 Kittridge Rd	7.92	RHC	HR	0.5	1
55	51718068	20392 Hill Ave	1.36	RVLD	R-1-40,000	1.09	1
56	51722111	Peach Hill Rd	6.13	RHC	HR	0.5	1
57	51736002	Bohlman Rd	0.11	RHC	HR	0.5	1
58	51738003	Peho Ln	1.02	RHC	HR	0.5	1
59	51738006	Peach Hill	2.28	RHC	HR	0.5	1
60	51738007	Peach Hill	6.07	RHC	HR	0.5	1
Total			149.8				57

Source: City of Saratoga Community Development Department, 2022.

- Exhibited developer and/or property owner interest to develop residential uses at greater densities and intensities than currently permitted.
- Presence of existing infrastructure adjacent or in proximity to sites due to the location of sites within existing urbanized portions of the city. While some sites may require lateral connections or expansions of existing utilities, these improvements are considered standard improvements and routine of redevelopment projects in urbanized areas. Such improvements will be done at the expense of developers.

Individual parcels comprising housing sites may be “vacant” by definition (i.e., undeveloped with little to no physical improvements), but are grouped as “non-vacant” resources due to their anticipated consolidated development along with other parcels that are developed and “non-vacant.” A complete list of the City of Saratoga’s non-vacant land resources is included in Table III-7 below.

(3) New Mixed-Use Land Use Designations

New General Plan Mixed-Use Land Use designations are proposed as part of the General Plan Amendments. These new designations, and the development characteristics associated with each designation, are provided below.

- **Mixed-Use Medium Density (MU-MD):** Minimum density of 15 dwelling units per acre (du/ac) and maximum density of 25 du/ac. Maximum intensity of building coverage: 60 percent of site area.
- **Mixed-Use High Density (MU-HD):** Minimum density of 30 du/ac and maximum density of 40 du/ac. Maximum intensity of building coverage: 70 percent of site area.
- **Mixed-Use Very High Density (MU-VHD):** Minimum density of 80 du/ac and maximum density of 120 du/ac. Maximum intensity of building coverage: 90 percent of site area.

(4) Rezoning

The City’s Housing Sites Inventory assumes the rezoning of 26 sites to allow residential development or more intense residential development than currently permitted by existing zoning districts. Accordingly, these vacant and non-vacant housing sites are to be included within a proposed rezoning program to allow for development potential consistent with the City’s RHNA requirements. This rezoning program would consist of the creation, and adoption of three new mixed-use zoning districts: “Mixed-Use Medium Density” (MU/MD), “Mixed-Use High Density” (MU/HD), and “Mixed-Use Very High Density” (MU/VHD). These new zoning districts would allow for mixed-use residential development consistent with HCD requirements that require at least 50 percent of building floor area, and allow up to 100 percent of building floor area, to be dedicated

TABLE III-7 NON-VACANT/UNDERUTILIZED LAND INVENTORY

Site #	APN	Address	Acres	Existing Use	Existing Zoning	Proposed Rezoning	Proposed Density (Du/Acre)	Realistic Capacity				
								VLI	LI	MI	AMI	Total
EXISTING SENIOR HOUSING SITE												
<i>Fellowship Plaza Housing Site</i>												
61	39712016	14500 Fruitvale Avenue ^a	10.47	Senior Housing	R-1-40,000	-	20	80	0	0	0	80
MULTI-FAMILY HOUSING SITES												
Medium Density Multi-Family Housing Sites												
<i>Gateway North Housing Site</i>												
62	36622022	12029 Saratoga Sunnyvale Road	2.54	Comm. Center	CN	MU/MD	15-25	0	0	6	32	38
63	36622023	12015 Saratoga Sunnyvale Road	0.38	Gas Station	CN	MU/MD	15-25	0	0	3	5	6
<i>Subtotal</i>			2.92					0	0	7	37	44
High Density Multi-Family Housing Sites												
<i>Gateway South Housing Sites</i>												
64	36612066	12361 Saratoga Sunnyvale Road	0.32	Comm. Building	CV	MU/HD	30-40	3	1	2	4	10
65	36612065	12341 Saratoga Sunnyvale Road	0.94	Funeral Home	CV	MU/HD	30-40	7	4	5	12	28
66	36612054	12333 Saratoga Sunnyvale Road	1.01	Comm. Building	CV	MU/HD	30-40	8	5	4	13	30
67	36612072	12299 Saratoga Sunnyvale Road	3.08	Storage	CV	MU/HD	30-40	24	14	15	39	92
68	38653031	12312 Saratoga Sunnyvale Road	1.23	Office Building	CV	MU/HD	30-40	10	6	6	15	37
<i>Subtotal</i>			6.58					52	30	32	83	197
<i>Saratoga Avenue Housing Site</i>												
69	38906017	13025 Saratoga Avenue	9.76	Vacant	PA	MU/HD	30-40	79	44	47	123	293
70	38906007	12961 Village Drive	0.45	Office Building	PA	MU/HD	30-40	4	2	2	6	14
71	38906006	12943 Village Drive	0.38	Vacant	PA	MU/HD	30-40	3	2	2	5	11
72	38906008	Village Drive	0.49	Vacant	PA	MU/HD	30-40	4	2	2	6	15
73	38906016	12989 Saratoga Avenue	0.37	Vacant	PA	MU/HD	30-40	3	2	2	5	11
<i>Subtotal</i>			11.45					93	52	55	144	344
<i>Village East Housing Site</i>												

III. PROJECT DESCRIPTION

TABLE III-7 NON-VACANT/UNDERUTILIZED LAND INVENTORY

Site #	APN	Address	Acres	Existing Use	Existing Zoning	Proposed Rezoning	Proposed Density (Du/Acre)	Realistic Capacity				
								VLI	LI	MI	AMI	Total
74	39727028	14320 Saratoga Sunnyvale Road	0.46	Comm. Center	CV	MU/HD	30-40	4	2	2	6	14
75	39727029	20440 Arbeleche Lane	0.83	Multi-Family	R-M-4000	MU/HD	30-40	7	4	5	10	26
76	39727001	Arbeleche Lane (city parcel)	0.28	Parking Lot (city)	CV	MU/HD	30-40	2	1	1	4	8
77	39731020	14395 Saratoga Avenue	0.49	Office Building	PA	MU/HD	30-40	4	2	2	6	14
78	39731011	14375 Saratoga Avenue	0.56	Office Building	PA	MU/HD	30-40	4	3	3	7	17
79	39731008	14363 Saratoga Avenue	0.28	Office Building	PA	MU/HD	30-40	2	1	1	4	8
<i>Subtotal</i>			<i>2.90</i>					<i>23</i>	<i>13</i>	<i>14</i>	<i>37</i>	<i>87</i>
Very High-Density Multi-Family Housing Site												
<i>Prospect Lawrence Housing Site</i>												
80	38610043	18562 Prospect Road	2.14	Comm. Center	C-N (RHD)	MU/VHD	80-150	46	26	27	72	171
81	38610004	18560 Prospect Road	0.87	Carwash	C-N (RHD)	MU/VHD	80-150	19	10	11	29	69
82	38610055	18522 Prospect Road	0.30	Auto Repair	C-N (RHD)	MU/VHD	80-150	6	4	4	10	24
83	38610006	18506 Prospect Road	0.94	Auto Parts	C-N (RHD)	MU/VHD	80-150	20	11	12	32	75
84	38610007	18480 Prospect Road	0.87	Comm. Building	C-N (RHD)	MU/VHD	80-150	19	10	11	29	69
<i>Subtotal</i>			<i>5.12</i>					<i>111</i>	<i>61</i>	<i>66</i>	<i>172</i>	<i>410</i>
Single-Family Housing Sites												
<i>Wardell Housing Site</i>												
85	36614041	20851 Wardell Road	7.35	Non-Vacant	HR	R-1-12,500	1.36	0	0	0	10	10
<i>Allendale/Chester Housing Site</i>												
86	39701071	14001 Chester Avenue	12.13	Agriculture	A	R-1-20,000	1.98	0	0	0	24	24
<i>Quito/Pollard Housing Site</i>												
87	40322016	14076 Quito Road	3.56	Vacant	R-1-40,000	R-1-10,000	2.81	0	0	0	10	10
Total			62.5					359	156	174	517	1,206

^a Please note that the Fellowship Plaza Housing Site shares the same street address as the Saratoga Retirement Community Site identified within the "Pending Projects" section of this Report. Both the Saratoga Retirement Community and the Fellowship Plaza Housing Development are owned by the Independent Order of the Odd Fellows (IOOF), but are two separate, distinct developments. Accordingly, while the two developments share the same street address, they have unique APN values.

Source: City of Saratoga Community Development Department, 2022.

to residential uses. These new mixed use zoning districts are summarized below in Table III-8 and shown in Figure III-4. Twenty-three sites are proposed to be rezoned to one of the new zoning districts as part of this update and are indicated in Table III-7, Non-Vacant Sites Inventory.

TABLE III-8 RHNA BUFFER BY INCOME CATEGORY

Proposed Rezoning Districts	Allowable Density	Maximum Building Height
Mixed-Use Medium Density (MU/MD)	15-25 du/acre	2 Stories
Mixed-Use High Density (MU/HD)	30-40 du/acre	3 Stories
Mixed-Use Very High Density (MU/VHD)	80-150 du/acre	10 Stories

Source: City of Saratoga Community Development Department, 2022.

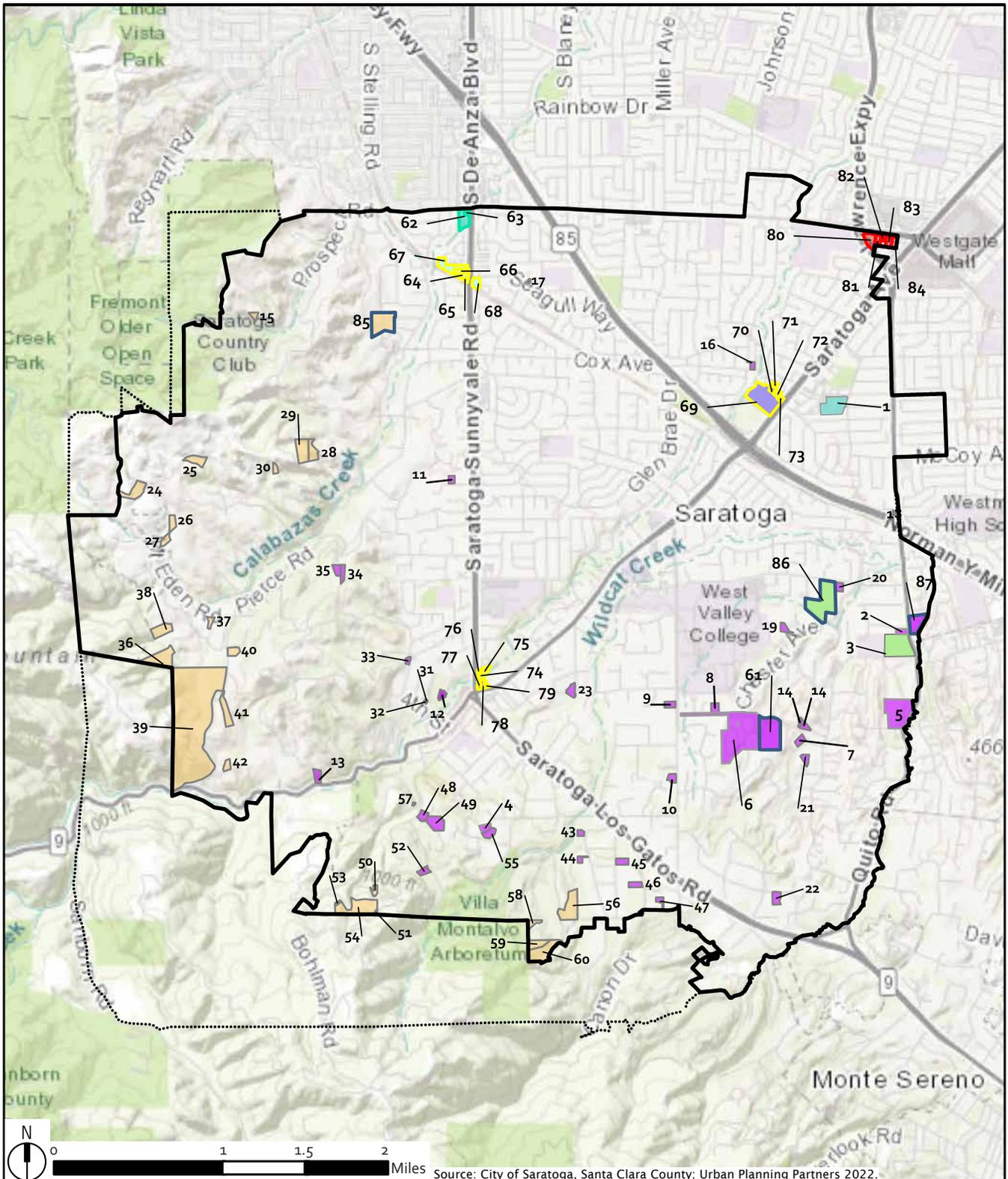
In addition to the new zoning districts proposed to be included within the City’s Rezoning Program, the City’s Housing Sites Inventory also assumes the rezoning of three Housing Sites to existing City zoning districts to allow for increased residential development potential. This includes Sites 85, 86, and 87 in Table III-7.

c. Goals, Policies, and Programs

As mentioned under *Project Objectives*, of this chapter, the Housing Element Update includes goals and policies to address and remove housing constraints, assist in the development of housing, improve and conserve the existing housing stock, and affirmatively further fair housing. All goals and policies have programs for implementation that include objectives, the responsible agency, and implementation schedule. The programs are found in Section 7 of the Housing Element Update.

2. Safety Element Update

As part of the project, the City of Saratoga will also be updating the Safety Element as required by State Law. A community’s Safety Element is meant to implement policies that minimize the negative impacts and risks of natural and man-made hazards such as fires, floods, droughts, earthquakes, and landslides. In recent years, State requirements have expanded the Safety Element’s scope to include climate change vulnerability and adaptation, and greater attention to evacuation routes. Jurisdictions are also now required to complete a vulnerability assessment; develop adaptation and resilience goals, policies, and objectives; and develop a set of feasible implementation measures addressing climate change adaptation and resiliency.



Source: City of Saratoga, Santa Clara County; Urban Planning Partners 2022.

- | | | | |
|------------------------------------|------------------------------------|--|-----------------------------|
| — Saratoga Municipal Boundary | ■ Agricultural (A) | ■ Visitor Commercial (CV) | ■ Residential Single Family |
| Saratoga Sphere of Influence | ■ Neighborhood Commercial (CN) | ■ Proposed Rezonings | |
| Existing Zoning | ■ C-N (RHD) | ■ Mixed-Use (MU) | |
| ■ Residential Single Family (R-1) | ■ Hillside Residential (HR) | ■ Mixed-Use High Density (MU/HD) | |
| ■ Residential Multi-Family (R-M) | ■ Professional Administrative (PA) | ■ Mixed-Use Very High Density (MU/VHD) | |

Figure III-4
Proposed Rezonings

3. 2040 General Plan Updates

This section summarizes proposed revisions associated with the 2040 General Plan Updates. The other elements of the General Plan would be reformatted to match the document format of the Land Use, Circulation and Scenic Highway, and Open Space and Conservation Elements. While there are a number of minor changes to the Land Use, Circulation and Scenic Highway, Open Space and Conservation, and Noise Elements, the primary changes are described below.

a. Land Use Element

The changes to the Land Use Element include both new policy direction and the incorporation of policy direction from the Village Plan. The Overall Height Limit will be updated to allow for taller buildings in areas planned for higher density and the Land Use Plan will be updated with new land use designation(s) to allow mixed-use residential development. These changes are consistent with the City's Housing Element Update and Housing Sites inventory as described in the *New Mixed Use Land Use Designations* subsection above. The City of Saratoga's current General Plan Land Use Designations are included in Figure III-5 while the City's Focused Planning Areas are included in Figure III-6. Focused Planning Areas in the city include the Hillside Specific Plan area, Saratoga Village Specific Plan area, Saratoga-Sunnyvale Gateway District area, and Saratoga Woods Neighborhood Single Story Overlay area.

(1) New Goals and Policies

The following goals and policies would be added to the Land Use Element.

Add Goal LU-21 and supporting policies which read as follows:

- **Goal LU-21:** Support of needed public services and service systems.
 - **Policy LU-21.1:** Coordinate with the Santa Clara County Library District to determine appropriate mitigation fees necessary to provide adequate library services.
 - **Policy LU-21.2:** Ensure the payment of appropriate school impact fees.
 - **Policy LU-21.3:** Continue to work cooperatively with surrounding jurisdictions to provide needed public services in efficient and cost-effective ways.

Add Goal LU-22 and supporting policies which read as follows:

- **Goal LU-22:** Maintain a high quality of life for residents of all ages and continue to partner with organizations who provide services and information to sensitive populations.

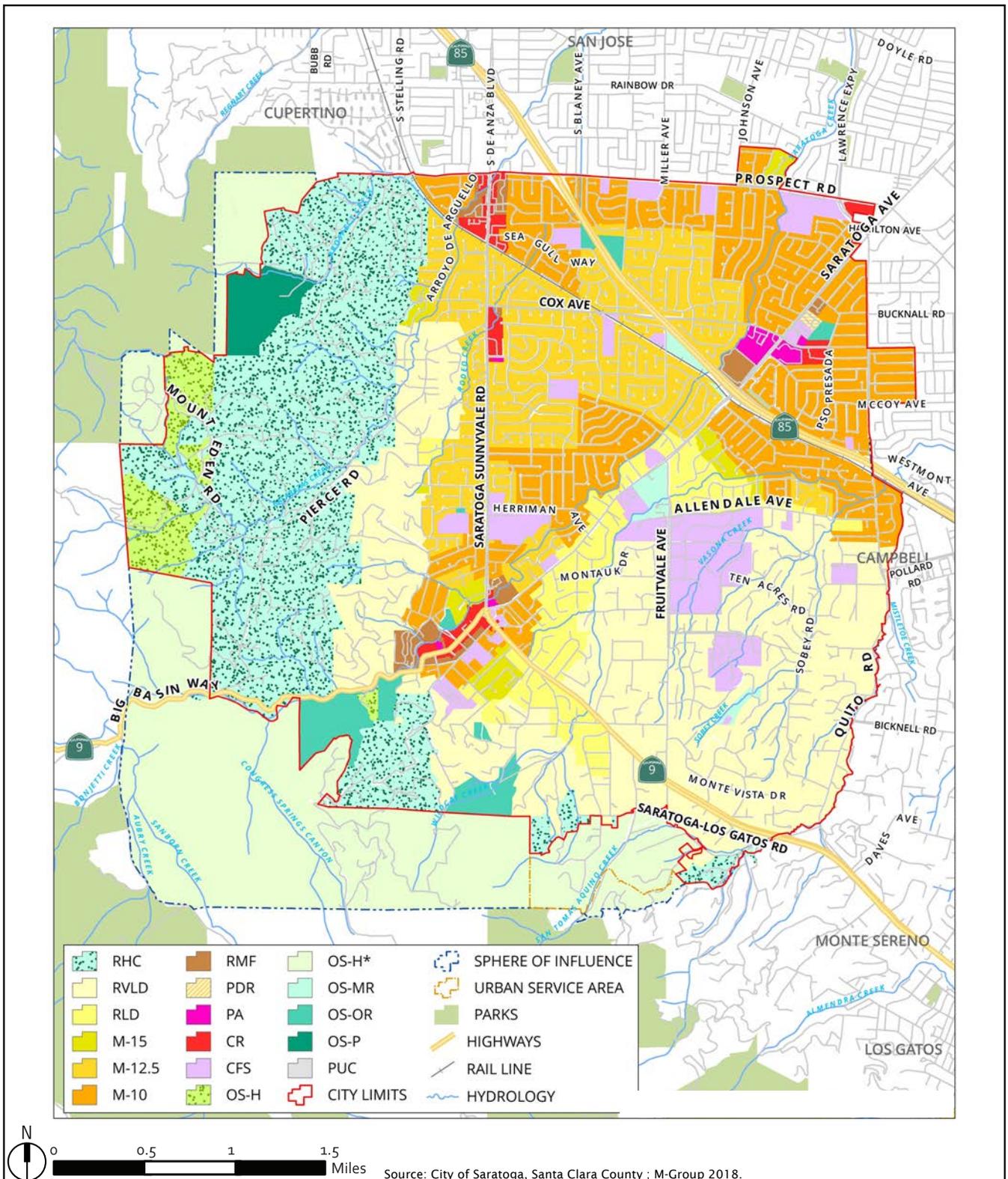


Figure III-5
 Current General Plan Designations
 Saratoga Housing and Safety Elements, and 2040 General Plan Updates EIR

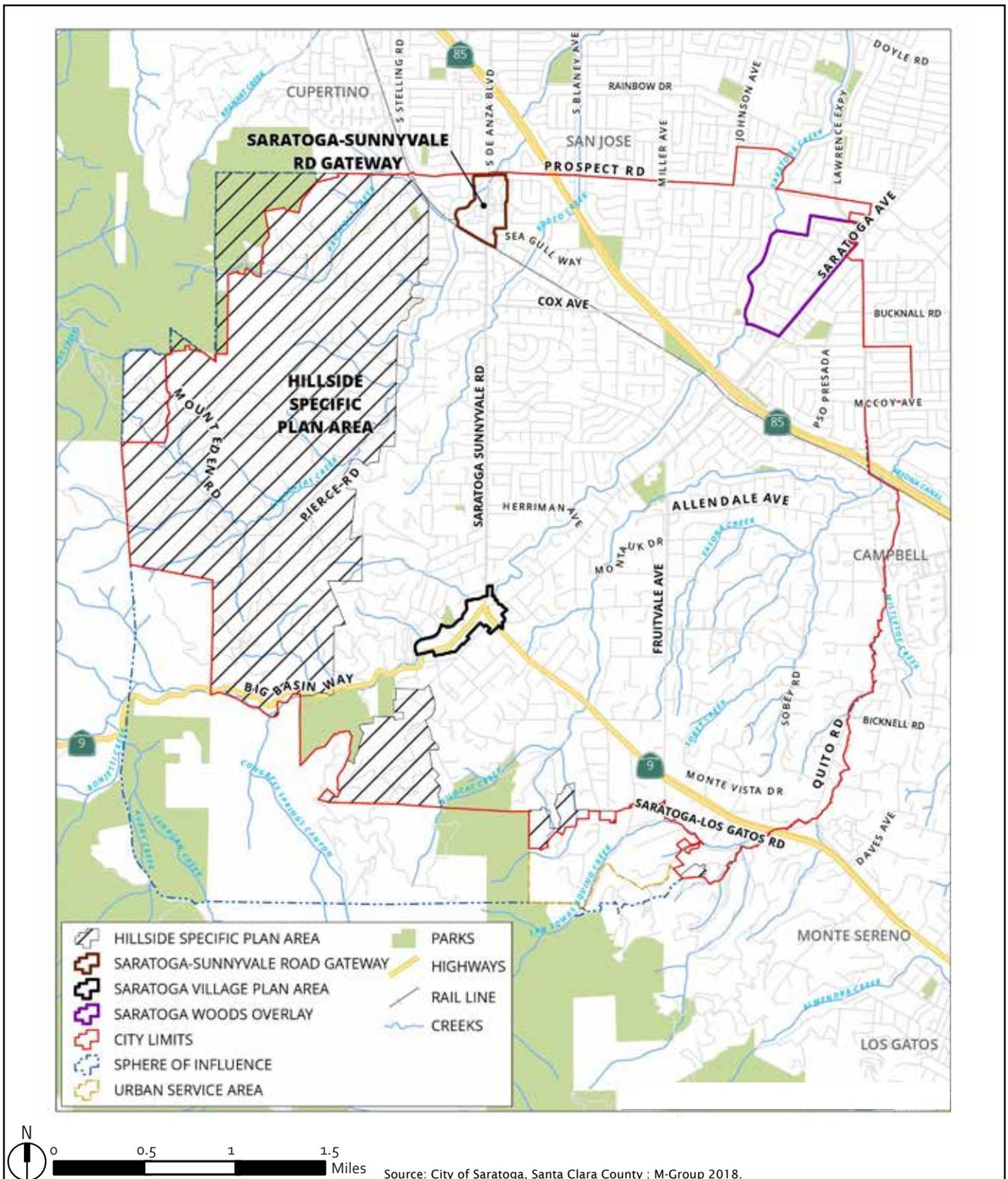


Figure III-6
 Focused Planning Areas

- **Policy LU-22.2:** Support organizations that provide services to residents with limited mobility or disabilities who need support in several areas to maintain their quality of life by ensuring they have access to services, the ability to socialize, and can take care of day to day activities.
- **Policy LU-22.3:** Promote access to City buildings, parks and amenities by maximizing compliance with accessibility standards.

(2) Incorporate Saratoga Village Specific Plan Goals and Policies

As part of the process of integrating some of the area plans into the General Plan, the following goals and policies from the Saratoga Village Specific Plan have been incorporated into the 2040 General Plan. Because these policies were already in effect, there is no overall change to the environment. The Saratoga Village Specific Plan goals and policies being integrated in the 2040 General Plan are as follows:

- **Goal LU-17:** Value and protect the human scale and historic context of downtown Saratoga.
 - **Policy LU-17.1:** The physical form and scale of The Village is connected with its rural origin capturing the charm of its 19th century roots. The City shall ensure that the integrity and character of Saratoga Village continues to reflect this familiar identity and retain the quaint qualities that have characterized its architectural form over the years.
 - **Policy LU-17.2:** Property development and building improvements shall fully utilize and respect the natural hillside and creek setting of The Village.
- **Goal LU-18:** To encourage and support the tenets of a vibrant and commercially successful downtown.
 - **Policy LU-18.1:** The City supports and encourages an interesting and diverse mix of ground floor businesses that appeal to the community and the broader marketplace and that enhance the shopping and dining experience and make the area more inviting to shoppers and diners while ensuring the success and sustainability of The Village as a viable commercial center.
- **Goal LU-19:** The Village shall serve as a center of community and civic activity.
 - **Policy LU-19.1:** The City shall consider The Village an important venue for civic events and community activities and will pursue opportunities to create and utilize public plazas and gathering places.
 - **Policy LU-19.2:** The City shall cultivate opportunities for incorporating public art and music in The Village as a means of enhancing The Village experience and emphasizing its place as a primary focal point in the community.

(3) Text Revisions to Height Limits

The following revisions regarding height limits within the City are made to Section 3.3.

Section 3.3: Overall Height Limit

In general, no structures in Saratoga are allowed over two stories in height. Exceptions include:

- Mixed-use land use categories identified in Section 3.2. Mixed-use land use categories are identified in the 2023-2031 Housing Element and range from two to ten stories.
- Structures located within The Village which are allowed a maximum of three stories.
- The Prospect Road Commercial Retail sites (located between Lawrence Expressway and Saratoga Avenue) identified for Residential High-Density development which are allowed a maximum of three-stories.
- On sites used for quasi-public uses, a three-story structure may be allowed provided the slope underneath the three-story area is 10 percent or more and a stepped building pad is used.

b. Circulation and Scenic Highway Element

The following major policy changes would be made to the Circulation and Scenic Highway Element of the 2040 General Plan. No changes are proposed to the roadway network.

Consolidate Policy CI-2.4 in Policy CI-2.9 and add a new Policy CI-2.4 to address current transportation impact analysis requirements to read as follows:

Policy CI 2.4: Develop, implement, and update as necessary Citywide multi-modal transportation impact analysis (TIA) guidelines that comply with SB 743 requirements and require development projects to mitigate and reduce their VMT, multi-modal impacts.” The TIA guidelines will include a set of practical and realistic transportation demand management (TDM) measures that can be used by employers and residents in the City to reduce the number of single-occupant vehicle trips. These measures will encourage ride-sharing and transit alternatives. The TIA guidelines will also define and provide guidance to maintain an acceptable vehicle level of service, as well as to evaluate pedestrian and bicycle facilities, access to transit, and safety.

Modify Policy CI-2.12 as follows:

Policy CI-2.12: Coordinate with the Santa Clara Valley Transportation Authority (VTA) to comply with the Congestion Management Program (CMP) Guidelines for CMP-designated

facilities. Should the CMP-designated facilities degrade below the CMP standard of Level of Service E, the City will prepare a Deficiency Plan for the deficient facilities per the VTA's requirements.

Add Goal CI-8 and supporting policies which read as follows:

- **Goal CI.8:** Ensure safe and efficient pedestrian and bicycle access to schools while working to manage school-related congestion.
 - **Policy CI.8.1:** Promote Safe Routes to Schools programs for all public and private schools serving the City.
 - **Policy CI.8.2:** Prioritize bicycle and pedestrian safety improvements in street modification projects that affect school travel routes to enhance safe school access.
 - **Policy CI.8.3:** Support education programs that promote safe walking and bicycling to schools.

Incorporate Saratoga Village Specific Plan Goal and Policy which reads as follows:

- **Goal CI-10:** Improve the effective and efficient use of public and private parking, and implement available circulation alternatives.
 - **Policy CI-10.1:** The City shall develop and implement a Parking Management Plan that outlines a strategy for the efficient and effective use of parking resources necessary to the commercial success of The Village.
- **Policy LU-10.2:** The City will provide effective and safe circulation through the Village for cars, bicycles, and pedestrians.
- **Policy LU-10.3:** The City will strive to minimize driveway curb cuts along Big Basin Way to lessen the disruption of pedestrian traffic flow and improve pedestrian safety.

c. Open Space and Conservation Element

This element would be updated with a Trails and Walkways Master Plan map and revised list of existing and proposed trails. There are no major changes in direction to the goals and policies.

d. Noise Element

There are no policy changes to the Noise Element. The only changes in the Noise Element are an update of the noise contours to reflect projected roadway noise contours for 2040.

E. REQUIRED APPROVALS

The following section outlines the City and other agency approvals required to implement the project.

1. City Approvals

Implementation of the project would require amendments to the General Plan and to the City's Municipal Code. These amendments are included as part of, and would be adopted at the same time as, the project. Upon adoption, the Housing Element, Safety Element, Land Use Element, Open Space and Conservation Element, and Circulation and Scenic Highway Element would replace the existing elements.

This EIR is intended to provide the information and environmental analysis necessary to assist the City in considering all the approvals and actions necessary to adopt and implement the project. The following are anticipated actions/approvals concerning the project:

- **Certify the EIR** and make environmental findings and adopt a Mitigation Monitoring and Reporting Program pursuant to CEQA.
- **Adopt the Housing Element** and make required findings including findings required by Measure G.
- **Adopt the Safety Element** and make required findings.
- **Adopt the Land Use, Open Space and Conservation, and Circulation and Scenic Highway Elements** and make required findings.
- **Amend the General Plan** and associated maps to be consistent with the project, including amendments to land use designations pursuant to the Housing Element.
- **Amend the Saratoga Municipal Code** text and maps to be consistent with the project.

The City intends to use the streamlining/tiering provisions of CEQA to the maximum feasible extent, so that future environmental review of specific projects is expeditiously undertaken without the need for repetition and redundancy, as provided in CEQA Guidelines section 15152 and elsewhere. Specifically, pursuant to CEQA Guidelines Section 15183, streamlined environmental review is allowed for projects that are consistent with the development density established by zoning, community plan, or general plan policies for which an EIR was certified, except as might be necessary to examine whether there are project-specific significant effects peculiar/unique to the project or the project site. Likewise, Public Resources Code section 21094.5 and CEQA Guidelines Section 15183.3 also provide for streamlining for certain qualified, infill projects. In addition, CEQA Guidelines Section 15162-15164 allow for preparation of a Subsequent (Mitigated) Negative Declaration, Supplemental or Subsequent EIR, and/or

Addendum, respectively, to a certified EIR when certain conditions are satisfied. Moreover, California Government Code Section 65457 and CEQA Guidelines Section 15182 provide that once an EIR is certified and specific plan adopted, any residential development project, including any subdivision or zoning change that implements and is consistent with the specific plan is generally exempt from additional CEQA review under certain circumstances. The above are merely examples of possible streamlining tiering mechanisms that the City may pursue and in no way limit future environmental review of specific projects.

2. Other Required Approvals

Additional agencies would need to review and approve components of the project, as listed below.

- **California Department of Housing and Community Development (HCD)** will review the Housing Element Update prior to adoption and subsequently certify the Housing Element Update following adoption.
- **California Board of Forestry and Fire Protection** will review the Safety Element Update prior to adoption.
- **California Geological Survey of the Department of Conservation** will review the Safety Element prior to its adoption.

IV. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

This chapter provides the analysis for each environmental topic determined to be potentially significant with regard to the proposed Saratoga Housing and Safety Elements, and 2040 General Plan Updates (the project) during the scoping period. Sections IV.A through IV.O of this chapter describe the existing setting, the potential impacts that could result from implementation and buildout of the project, and the mitigation measures designed to reduce the significant impacts of the project to a less-than-significant level.

The following provides an overview of the scope of the analysis included in this chapter, the organization of the sections, and the methods for determining which impacts are significant.

ENVIRONMENTAL TOPICS

This chapter of the Draft EIR is made up of 15 sections, each of which evaluate the direct, indirect, and cumulative environmental impacts of the project. In accordance with Appendix G, Environmental Checklist of the CEQA Guidelines, the potential environmental effects of the project are analyzed for potential significant impacts in the following environmental topics:

- A. Aesthetics
- B. Air Quality
- C. Biological Resources
- D. Cultural and Tribal Cultural Resources
- E. Geology and Soils
- F. Greenhouse Gas Emissions
- G. Hazards, Hazardous Materials, and Wildfires
- H. Hydrology and Water Quality
- I. Land Use, Agriculture, and Forestry Resources
- J. Noise
- K. Parks and Recreation
- L. Population and Housing
- M. Public Services
- N. Transportation
- O. Utilities and Service Systems

Each environmental topic subsection of this EIR includes three main components:

1. **Setting** – an evaluation of the existing baseline physical conditions of the environmental topic in the project area, and
2. **Regulatory Setting** – an overview of the applicable existing federal, State, regional, and local regulations; and
3. **Impacts and Mitigation Measures** – an evaluation of anticipated impacts (construction, project, and cumulative) to be generated by the project, and any applicable mitigation measures or General Plan policies.

IMPACTS AND MITIGATION

Each topic subsection includes an identification and description of anticipated project impacts as well as whether such impacts are considered to be “Significant”, “Significant and Unavoidable”, or “Less than Significant.” Identified significant impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic (in the order described above) and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality).

The following abbreviations are used for individual topics:

AES:	Aesthetics
AIR:	Air Quality
BIO:	Biological Resources
CULT:	Cultural and Tribal Cultural Resources
GEO:	Geology and Soils
GHG:	Greenhouse Gas Emissions
HAZ:	Hazards, Hazardous Materials, and Wildfires
HYD:	Hydrology and Water Quality
LU:	Land Use, Agriculture, and Forestry Resources
NOISE:	Noise
REC:	Parks and Recreation
POP:	Population and Housing
PS:	Public Services
TRANS:	Transportation
UTIL:	Utilities and Service Systems

The following notations are provided after each identified significant impact and mitigation measure:

SU:	Significant and Unavoidable
S:	Significant
LTS:	Less than Significant

These notations indicate the significance of the impact with and without mitigation. All impacts that require mitigation measures and/or are SU are identified with **bold** impact statements.

Chapter V, Effects Found Not to Be Significant or Less Than Significant, includes a brief analysis of each environmental topic for which effects from the project were found to be either not significant or less than significant through the scoping process and preliminary review. These topics include: Mineral Resources and Energy.

1. Determination of Significance

CEQA regulations define a “significant effect” as a substantial or potentially substantial, adverse change in the environment. Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant. Appendix G of the State CEQA Guidelines provides thresholds which impacts are evaluated against to determine significance. Appendix G was recently updated in 2018 to reflect recent changes to the CEQA statutes and court decisions including transportation thresholds. The thresholds/criteria used in this EIR incorporate these 2018 revisions.

CEQA requires the analysis of potential adverse effects of the project on the environment. However, CEQA does not require that potential effects of the environment on the project be analyzed or mitigated. Nevertheless, this document includes an analysis of potential effects of the environment on the project to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies project-specific non-CEQA recommendations to address these issues.

CUMULATIVE IMPACT ANALYSIS

CEQA regulations define cumulative as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.”

2. Methodology

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. For example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts, which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

According to Section 15130(b) of the CEQA Guidelines, the discussion of cumulative effects “. . . need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness . . .” The evaluation of cumulative impacts is to be based on either (a) “a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those impacts outside the control of the agency,” or (b) “a summary of projections contained in an adopted local, regional, or statewide plan or related planning document, that describes or evaluates conditions contributing to the cumulative effect . . . Any such planning document shall be referenced and made available to the public at a location specified by the Lead Agency” (CEQA Guidelines Section 15130(b)(1)). Pursuant to Section 15130(d), cumulative impact discussions may rely on previously approved land use documents such as general plans, specific plans, and local coastal plans, which may be incorporated by reference.

3. Plans and Projects Evaluated for Determination of Cumulative Impacts

To determine the project’s potential cumulative impacts, this EIR considers the effects of the project over the course of the 8-year 6th cycle planning period in conjunction with growth and development projections contained within adopted local plans as well as the El Paseo and 1777 Saratoga Ave Mixed Use Village and Costco Westgate projects located in San Jose.

Cumulative impacts of the project are cumulative by their nature, and are generally limited to other local plans, unless otherwise noted in each respective resource topic. For this reason, no specific other development projects are considered within this document. For the purposes of analyzing the cumulative analysis of the project, these local plans include the City of Saratoga’s General Plan and Municipal Code. These plans and programs are discussed under the Regulatory Setting subsections contained within the respective resource topics. Cumulative impacts determined as a

part of analysis are included within each of the subsections of the respective resource topics. Highlighted below are City plans and programs relied upon throughout the cumulative evaluation.

a. City of Saratoga General Plan

The City of Saratoga's General Plan encompasses a comprehensive strategy of managing the City's future. The General Plan is a legally binding document to be used by City officials, development community members, citizens, and others to guide decisions regarding the future development and management of community resources, including land, the natural environment, public services, and facilities. Accordingly, the General Plan serves as the City's lead policy document which identifies long-term community goals as well as the policies and programs drafted to help the City achieve these goals.

b. City of Saratoga Municipal Code

The City of Saratoga's Municipal Code includes a set of regulations applicable to development throughout the city which are intended to implement the goals, policies, and programs of the City's General Plan. The City's Municipal Code includes Building Regulations (Chapter 16) as well as regulations pertaining to public safety (Chapter 6), health and sanitation (Chapter 7), subdivisions (Chapter 14) and the City's adopted Zoning Regulations (Chapter 15). The City's adopted Zoning Ordinance regulates the physical development of land by imposing minimum design standards regarding permitted uses, lot size and dimensions, floor area ratio, and building height among others. Such standards are intended to mitigate impacts of development relative to its surroundings and the existing character of the city.

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A. AESTHETICS

This section of the EIR describes the existing visual character of the project planning area, identifies the existing regulatory framework in place related to scenic resources, and analyzes potential aesthetic impacts associated with implementation of the project.

1. Existing Setting

a. Visual Character and Scenic Vistas

The predominant land use in Saratoga is residential, most of which is low density, single-family homes on individual lots. Medium density residential uses, comprised primarily of smaller apartment and condominium units, are found near the intersections of Saratoga Avenue and State Route (SR-) 85, Prospect Road and Saratoga-Sunnyvale Road, and adjacent to the downtown "Saratoga Village."

Major commercial and shopping areas include the downtown "Saratoga Village" located along Big Basin Way, at the intersection of Saratoga-Sunnyvale Road, Saratoga-Los Gatos Road, and Saratoga Avenue. The downtown area includes a range of restaurants, specialty retail, professional offices, and personal services. Smaller commercial areas are located along Saratoga-Sunnyvale Road between Prospect Road and the railroad tracks, Saratoga-Sunnyvale Road south of Cox Avenue, near the intersection of Saratoga Road and Cox Avenue, and west of Saratoga Avenue south on Prospect Road.

The city's valley floor is fully developed with single-family residences, commercial, and public facilities. As a result, very few of the earlier orchards and agricultural lands remain. While the city does not have any officially designated scenic vistas, the low-lying foothills and the Santa Cruz Mountains provide a scenic and open space resource which balances the growing urbanized areas of the valley floor. The hills to the west and south of the city similarly provide a scenic backdrop, especially to those neighborhoods in the western and southern portions of Saratoga. The conservation of these open spaces with their scenic views, undisturbed wildlife habitat, and native forests, are important in maintaining the visual character of the planning area.

The City has prepared three specific plans for various areas of the city. These specific plan areas have different land uses and, therefore, different aesthetic characters. These specific plan areas are briefly described below.

- *Hillside Specific Plan.* The Hillside Specific Plan area is defined by its rural low density single-family residential development. This hillside area includes changes in elevation, abundant vegetation, and a rural character.

- *Saratoga Village Specific Plan.* The downtown area includes a range of restaurants, specialty retail, professional offices, and personal services. Buildings within the downtown are generally one to two stories with the building placed at the front of the lot with pedestrian access provided from the sidewalk parallel to the street. In some cases, a building development is a multi-tenant commercial property with parking lots located at the front of the property. Mature trees, ornamental landscaping, pedestrian amenities, and on-street parallel parking are also located throughout the area.
- *Saratoga-Sunnyvale Road Gateway Improvement Master Plan.* The Saratoga-Sunnyvale Gateway District comprises the commercially designated properties on Saratoga-Sunnyvale Road between Prospect Road and the railroad tracks. Development within this area is generally characterized as multi-tenant commercial buildings within surface parking lots fronting the street.

b. Scenic Highways and Roadways

Designated scenic highways and roadways in the planning area are depicted in Figure IV.A-1 and are described below.

SR-9 is designated as an “Officially Designated State Scenic Highway” by the California Department of Transportation (Caltrans) within the City of Saratoga.

Chapter 3.30: Scenic Roads Combining Districts, are special districts to protect the visual character of scenic roads in Santa Clara County through special development and sign regulations. The “-sr” combining district applies to all designated scenic roads in unincorporated Santa Clara County. Below are the County Scenic Roadway segments located in the planning area are:

- Congress Springs Road (from the Saratoga Gap to the Saratoga City limit);
- Bohlman Road/Montevina Road;
- Mt. Eden Road; and
- Sanborn Road.

The City of Saratoga has designated two roadways as Heritage Lanes. While not an official roadway classification for circulation purposes, this designation indicates corridors that are maintained to preserve the city’s character. Heritage Lanes include Saratoga Avenue between Fruitvale Avenue and Park Place; and Austin Way south of Saratoga-Los Gatos Road (SR-9).

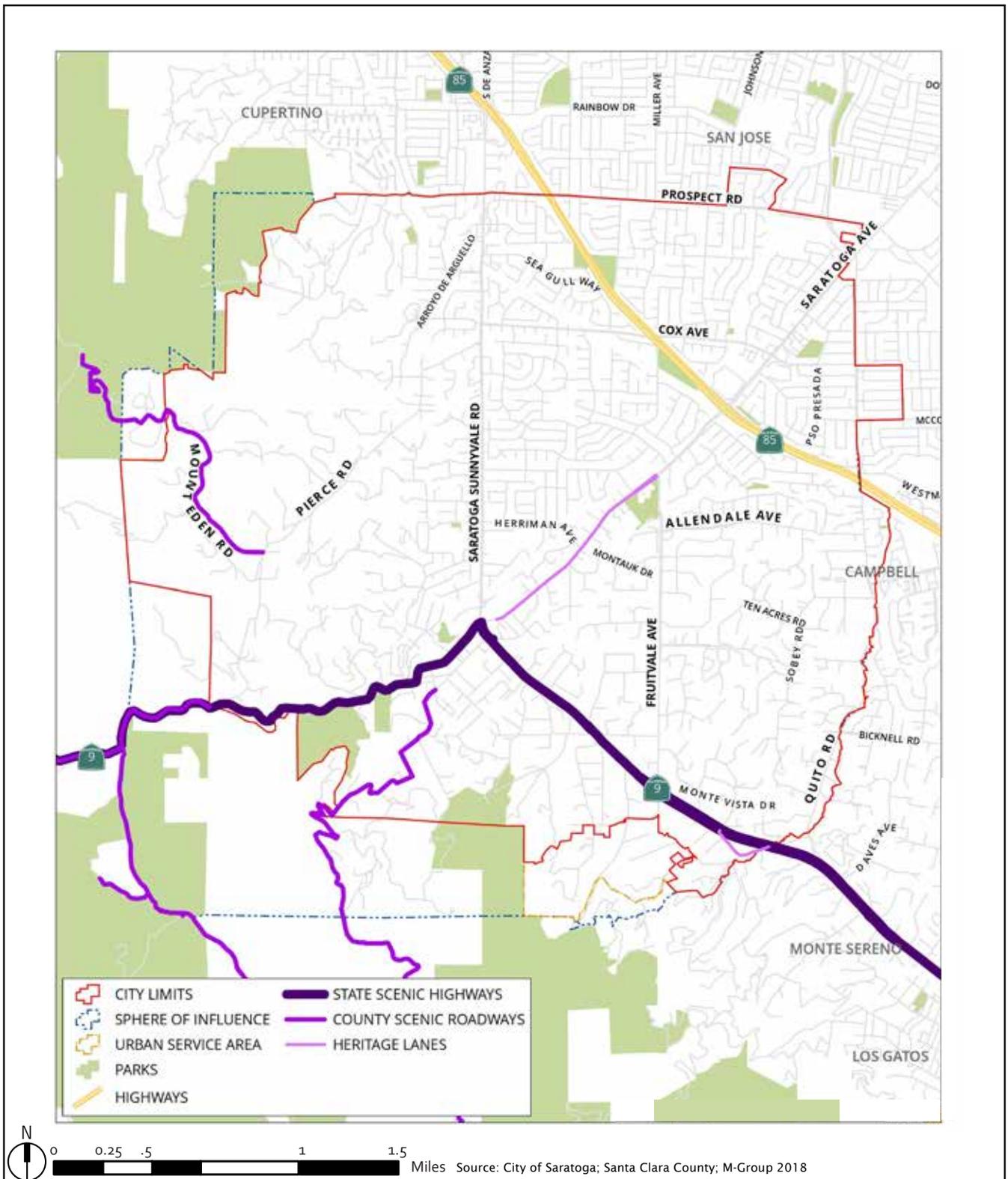


Figure IV.A-1
Scenic Highways and Roadways

c. Light and Glare

Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow, and over-lighting. Views of the night sky are an important part of the natural environment. Excessive light and glare can be visually disruptive to humans and nocturnal animal species.

During the day, sunlight reflecting from structures is a primary source of glare, while nighttime light and glare can be divided into both stationary and mobile sources. Stationary sources of nighttime light include structure illumination, interior lighting, decorative landscape lighting, and streetlights. The principal mobile source of nighttime light and glare is vehicle headlamp illumination.

The urban land uses in the city's valley floor are the main source of daytime and nighttime light and glare. The low-lying foothills and hillsides are characterized by less intense development and generally have lower levels of ambient nighttime lighting and daytime glare. The existing light environment found in the planning area is considered typical for suburban areas.

2. Regulatory Setting

a. State

(1) California Scenic Highway Program¹

The California Scenic Highway Program is administered by Caltrans with the purpose of preserving the character of scenic highways and protecting them from changes that may diminish the aesthetic value of adjacent lands. Within Santa Clara County, SR-9 is the only "Officially Designated State Scenic Highway," and extends from the Santa Cruz County line to the Los Gatos Town limit. Caltrans has designated segments of Interstate 280 (I-280), SR-35, SR-17, and SR-152 as Eligible State Scenic Highways; however, none of these eligible roadways traverse the planning area.

¹ California Department of Transportation, California Scenic Highway Mapping System, Officially Designated Scenic Highways. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>, accessed October 11, 2022.

(2) Nighttime Sky – Title 24 Outdoor Lighting Standards, 2016²

The California Energy Commission (CEC) regulates the energy efficiency of outdoor lighting for residential and nonresidential development. The standards serve to improve the quality of outdoor lighting by reducing the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Exterior lighting allowances vary by Lighting Zones (LZ). The lowest illumination levels are encouraged in LZ0 (very low) and increasingly more power is allowed in LZ1 (low), LZ2 (moderate), LZ3 (moderately high), and LZ4 (high). The statewide default location for each Lighting Zone is as follows:

- LZ0 – Undeveloped areas of government designated parks, recreation areas, and wildlife preserves.
- LZ1 – Developed portion of government designated parks, recreation areas, and wildlife preserves.
- LZ2 – Rural areas, as defined by the 2010 U.S. Census.
- LZ3 – Urban areas, as defined by the 2010 U.S. Census.
- LZ4 – No statewide default location. Special district created by local government.

b. Local

(1) Saratoga General Plan

The existing General Plan contains the following goals, policies, and implementation measures (IM) that promote the protection and enhancement of aesthetics in Saratoga:

Land Use Element

Goal LU 1: Maintain the predominantly small town residential character of Saratoga which includes semi-rural and open space areas.

Policy LU 1.1: Affirm that the city shall continue to be predominately a community of single-family detached residences.

Policy LU 1.2: Continue to review all residential development proposals to ensure consistency with Land Use Element Goals and Policies.

² California Energy Commission, 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings for the 2019 Building Efficiency Standards. Available at: <https://www.energy.ca.gov/publications/2008/2019-building-energy-efficiency-standards-residential-and-nonresidential>, accessed October 11, 2022.

IM LU-1.a: The City shall continue to utilize the Residential Design Handbook and design review process to ensure consistency with Residential Land Use Goals and Policies.

Policy LU 5.2: Development proposals shall be evaluated against City standards and guidelines to assure that the related traffic, noise, light, appearance, and intensity of the proposed use have limited adverse impact on the area and can be fully mitigated.

Policy LU 5.4: Through the development review process, ensure that adjoining neighborhoods are protected from noise, light, glare and other impacts resulting from new or expanded non-residential developments.

Goal LU 8: The natural beauty of the West Valley hillsides area shall be maintained and protected for its contribution to the overall quality of life of current and future generations.

Policy LU 8.1: Development proposals shall minimize impacts to ridgelines, significant natural hillside features, including but not limited to steep topography, major stands of vegetation, especially native vegetation and oak trees, and watercourses.

Policy LU8.2: Adhere to the Hillside Specific Plan (derived from Measure A) which is incorporated herein by this reference.

IM LU.8.a: Continue to utilize the design review process for all development in the western hillsides and ensure adherence to the City's Hillside Specific Plan.

Goal LU 9: Preserve the rural nature of the hills by limiting incompatible development.

Policy LU 9.1: Limit Expansion of Urban Development in the hillside areas.

Policy LU 9.2: Limit the amount of grading within hillside areas to the minimum amount needed for dwellings and access.

Goal LU 10: Minimize the visual impacts of hillside development, especially on ridgetops.

Policy LU 10.1: Require development proposals in hillside areas to undertake visual analyses and mitigate significant visual impacts.

IM LU.10.a: Continue to adhere to the Residential Design Handbook during design review for residential developments in the hillside areas.

Policy LU-11.1: Adhere to Joint Hillside Land Use Objectives that will assure basic consistency of hillside land use policies among the West Valley jurisdictions. The West Valley Cities and

the County should work together to achieve the shared goal of preserving the natural beauty of the West Valley Hillsides.

Policy LU-11.2: Continue to work within the adopted Joint Planning Objectives and Land Use principles for West Valley Hillsides Areas to reinforce existing policies.

Policy LU 12.1: Enhance the visual character of the City by encouraging compatibility of architectural styles that reflect established architectural traditions.

Goal LU 13: The City shall use the design review process to assure that new construction and major additions thereto are compatible with the site and the adjacent surroundings

Policy LU-13.1: Utilize the design review process and the California Environmental Quality Act in the review of proposed residential and non-residential projects to promote high quality design, to ensure compliance with applicable regulations, to ensure compatibility with surrounding properties and uses, and to minimize environmental impacts. Special attention shall be given to ensuring compatibility between residential and non-residential uses (e.g., land use buffering).

Policy LU-13.2: When considering development proposals, including new construction, remodeling and/or additions to existing buildings, the City shall adhere to applicable adopted design guidelines, such as, but not limited to, the Single-Family Residential Design Review Handbook, the Village Design Guidelines, and the Saratoga-Sunnyvale Road Gateway Design Guidelines, as may be adopted and revised by City Council from time to time.

IM LU-13.a: Continue to use the design review process for all development applications and ensure that all projects adhere to applicable design guidelines (i.e. Single Residential Design Handbook, Saratoga-Sunnyvale Road Gateway Area Design Guidelines and Village Plan Design Guidelines).

Circulation and Scenic Highway Element

Goal CI.6a: Protect the aesthetic, historic and remaining rural qualities of Saratoga through street design and landscaping.

Goal CI.6b: Strive for aesthetically pleasing views from all roads in Saratoga and the Sphere of Influence.

Goal CI.6c: Encourage the preservation of the width and appearance of those roads designated as heritage resources by the City.

Policy CI-6.1: Identify areas of critical need for beautification and coordinate plans with revitalization or anticipated development of areas such as City gateways.

Policy CI-6.3: Permit variation of the conventional City street development standards, as described in the City's Subdivision Ordinance, in order to preserve environmentally sensitive roadside features where traffic safety will permit such variations.

Policy CI-6.5: Encourage the planting of trees and plan the development of landscaped medians along major arterial roadways.

Policy CI-6.7: Require increased setbacks of up to 100 feet for structures, walls or fences to be located on lots adjacent to officially designated scenic highways where it is determined by the City that such increased setbacks are necessary to preserve the scenic qualities of the highway.

Policy CI-6.8: Require increased setbacks and landscaping for commercial and multifamily residential structures on corner lots adjacent to arterial streets, as required, to reduce the visual impact of such structures and to enhance the appearance of important intersections where it is determined by the City that such increased setbacks are necessary to preserve the scenic qualities of the highway.

Open Space and Conservation Element

Goal OSC 2: To preserve the City's existing character which includes small town residential, rural/semi-rural areas and open spaces.

IM OSC.2.a. The City shall continue to use the design review process to ensure that all development proposals are sensitive to the natural environment and consistent with the existing character of the community which includes small town residential, rural/semi-rural areas and open spaces.

Goal OSC 6: Preserve the hillside lands in their natural condition and inherent natural beauty.

Policy OSC-6.3: Future land uses within the western hillside or any Sphere of Influence expansion area shall be reviewed by the City through the development review process to ensure consistency both with existing patterns of land use in the unincorporated hillside areas, and with the City's desire to maintain the area as predominantly open space.

IM OSC-6.a: The City shall continue to use the design review and subdivision entitlement process to ensure that all development proposals are designed in a manner that meets goals and policies for preservation of hillsides.

IM OSC-7.a: Continue to use the design review and environmental review process to ensure that development

Goal OSC 7: Preserve and protect existing view sheds, view corridors, and scenic open spaces.

Policy OSC 7.1: Future land use proposals within the western hillside area shall be reviewed by the City through the development review and environmental review processes to ensure that improvements blend in with the natural environment. Criteria shall include but not be limited to the use of unobtrusive colors, controlled grading, limited disruption of natural vegetation, use of structural height limits, and structural design and density guidelines. Special consideration should be given to the eventual development of a canopy effect of tree growth.

IM OSC.7.a: The City shall continue to use the design review and environmental review process to ensure that development proposals in the hillsides are compatible with the natural environment.

(2) Hillside Specific Plan

The Hillside Specific Plan includes guidelines for the development of the northwestern hillsides, including policies and action programs with land use maps that are more detailed than the General Plan. The aesthetic-related goals of the Hillside Specific Plan include to protect and preserve the city's hillside scenic resources, protect the rural character of the area, and minimize impacts on the overall natural environment.

(3) Saratoga-Sunnyvale Gateway District

The Saratoga-Sunnyvale Gateway District comprises the commercially designated properties on Saratoga-Sunnyvale Road between Prospect Road and the railroad tracks. In 2003, the City Council adopted the Saratoga-Sunnyvale Road Gateway Improvement Master Plan to guide improvements within the public street right-of-way within the District. In addition, the City Council adopted Guidelines as part of the Saratoga-Sunnyvale Gateway District to provide direction for the design of mixed-use projects that include commercial and residential uses, as provided for in the General Plan Housing Element.

(4) Saratoga-Sunnyvale Road Gateway Design Review Guidelines

The Saratoga-Sunnyvale Road Gateway Design Guidelines are intended to guide development in the Saratoga-Sunnyvale Road Gateway District. These design guidelines build upon the Saratoga-Sunnyvale Road Gateway streetscape improvement master plan to address private sector development adjacent to the public street right-of-way on commercially zoned property. In addition, the guidelines provide direction for the design of mixed-use projects that introduce a component of residential uses within the Gateway District.

(5) Saratoga Woods Neighborhood Single Story Overlay

In 2002, at the request of the Saratoga Woods Neighborhood, the City Council established through the zoning ordinance a single-story limitation for residences in the Saratoga Woods Neighborhood. This neighborhood is bordered by Cox Avenue to the south, Saratoga Avenue to the east, Saratoga Creek to the west, and Prospect High School to the north. This restriction precludes any new two-story homes and second story additions to existing homes. The existing second story dwellings are exempt from this restriction. Outside of the Saratoga Woods Neighborhood, two-stories are permitted, but no single-family dwelling shall exceed 26 feet in height without a use permit.

(6) Saratoga Single-Family Residential Design Review Handbook

The Single-Family Residential Design Review Handbook serves as a guide for homeowners, architects, and builders in designing new single-family homes or remodeling existing homes in a manner that is compatible with surrounding properties. The Single-Family Residential Design Handbook was adopted to provide criteria for the design review findings found in City Code Section 15-45.080 and serves as a guide to staff, the Planning Commission, and the City Council in the single-family design review process. The handbook provides guidance on neighborhood context (mass, height, scale, proportion, streetscape), site planning (community viewsheds, setbacks), building design, landscaping, and hillside guidelines (hillside viewsheds, natural topography, site planning, building design).

(7) Overall Height Limit

As described in the General Plan, no structures in Saratoga shall be over two stories in height except that the maximum height of structures located within the Saratoga Village Area boundary (as defined by the Saratoga Village Area Plan, adopted in 1988), shall be regulated by the development standards of the Village Area Plan, as may be revised by City Council from time to time. Public schools and community colleges may be exempt from this height restriction.

On sites used for quasi-public uses, a three-story structure will be allowed provided the slope underneath the three-story area is 10 percent or more and a stepped pad is used (Resolution 2285 adopted 11/7/85).

As described in *Chapter III, Project Description*, amendments are proposed to the General Plan to allow for an increase in the number of building stories allowed within certain zoning districts in the city.

(8) Saratoga Municipal Code

Aesthetic resources are regulated under numerous sections of the City's Municipal Code. In particular, for each respective Zoning District, development and design standards serve to ensure that new development in the city is consistent and compatible with the established character of the city. For example, Article 15-13 (Hillside Residential District) identifies permitted uses, conditional uses, development criteria, site coverage, allowable floor area, setback areas, and height of structures within the hillside residential district. Other Zoning Districts identified in the Municipal Code include: Article 15-20 (Residential Open Space District); Article 15-12 (Single-Family Residential Districts); Article 15-17 (Multi-Family Residential Districts); and Article 15-16 (Planned Combined District).

Single-family structures are subject to design review approval under Article 15-45. All structures within the multi-family, commercial, professional, and administrative, and conditional uses in a planned combined district are subject to design review approval per Article 15-46.

3. Impacts and Mitigation Measures

This section analyzes aesthetic impacts that would result from implementation of the project. It begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes potential impacts associated with the project and identifies mitigation measures to address these impacts, as needed.

a. Significance Criteria

According to CEQA Guidelines Appendix G, the project will have a significant impact related to aesthetics if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

b. Analysis and Findings

This section analyzes the aesthetic impacts that would result from implementation of the project.

(1) Substantial Adverse Effect on a Scenic Vista (Criterion 1)

Future residential development under the project could have the potential to affect scenic vistas if new or intensified development occurred in areas that provide or contribute to such vistas. Potential effects could include blocking views of a scenic vista or noticeable alterations to the overall scenic vista itself. Such alteration could be either positive or negative, depending on the characteristics of individual future developments and the subjective perception of observers.

For the purpose of this analysis, a scenic vista is defined as a long-range viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The city does not have any designated scenic vistas identified within the General Plan. However, for this analysis, the westward views of the foothills and ridgelines of the Santa Cruz Mountains are considered scenic vistas.

Development associated with the project could result in an incremental increase in new residential development. Some of the new development or redevelopment could block views of the foothills and ridgelines of the mountains to the west or alter the natural scenic resources that comprise Saratoga's scenic vistas.

The General Plan contains policies and implementation measures that prevent substantial alteration of the foothills and ridgelines within the planning area. The General Plan also contains policies and implementation measures that preserve views of the foothills and ridgelines. For example, Policy LU-8.1 requires that development proposals minimize impacts to ridgelines and significant natural hillside features. Policy LU-10.1 requires development proposals in hillside areas to undertake visual analyses and mitigate significant visual impacts, especially to ridgelines. Implementation Measure OSC-6.a requires the City to use the design review and subdivision entitlement process to ensure that all development proposals are designed in a manner that meets goals and policies for preservation of hillsides. Implementation Measure OSC-7.a requires the City to use the design review and environmental review process to ensure that development proposals in the hillsides are compatible with the natural environment.

The Saratoga Municipal Code also contains rules and regulations to maintain the natural environment and existing rural character of the foothills and ridgelines to the west, thereby protecting scenic vistas. Articles 15-13 and 15-20 contain development and design standards for the hillside residential and residential open space districts to maximize the preservation of open space, including major ridgelines, densely wooded areas, and riparian vegetation.

All development and redevelopment associated with the project would be subject to the development and design standards for each respective zoning district to ensure that the height of the structure, its location on the site, and its architectural elements minimize impacts to scenic vistas. All new single family residential development is subject to the "Single-Family Residential

Design Review Handbook” which provides a menu of design techniques to assist projects in meeting requisite design review findings related to neighborhood context, site planning, hillside guidelines, and building design. Depending on the proposed location, development may further be subject to Saratoga-Sunnyvale Road Gateway Design Guidelines or Hillside Specific Plan which would further ensure that new development would be consistent with existing development and not introduce new construction that may inadvertently obstruct or obscure an important scenic vista.

Development associated with implementation of the project could result in an incremental increase in new residential development that could incrementally block views of the foothills and ridgelines of the mountains to the west or incrementally alter these natural scenic resources. However, compliance with General Plan policies OSC-6.1 OSC-6.2 and implementation measures, adherence to the development and design standards in the Saratoga Municipal Code, conformance with the Hillside Specific Plan and the design review approval requirement for single-family, multi-family and, conditional uses in a planned combined district, will ensure that impacts to scenic vistas remain at less than significant levels.

(2) Damage to a Scenic Resource within a State Scenic Highway (Criterion 2)

As described above, the planning area includes an Officially Designated State Scenic Highway (SR9), County Scenic Roadways, and locally designated Heritage Lanes. Development associated with the Housing Element Update could result in an incremental increase in new residential development. Some of the new development or redevelopment could occur along County Scenic Roadways, Heritage Lanes, or SR-9, which is designated as a State scenic highway. The land uses along SR-9 include: Open Space Hillside, Residential Hillside Conservation, Residential Very Low Density, Outdoor Recreation, Medium Density Residential, Residential Multi-Family, Commercial Retail, Professional Administrative, Community Facility Sites, and Residential Low Density.

The proposed General Plan contains policies and implementation measures that preserve the scenic resources along County Scenic Roadways, Heritage Lanes, and SR-9. Policy CI-6.5, which encourages the planting of trees and plans the development of landscaped medians along boulevard roadways, would enhance the aesthetic value of roadways within the planning area. Policy CI-6.7 requires increased setbacks of up to 100 feet for structures, walls, or fences to be located on lots adjacent to officially designated scenic highways where it is determined by the City that such increased setbacks are necessary to preserve the scenic qualities of the highway. Policy CI-6.8 requires increased setbacks and landscaping for commercial and multifamily residential structures on corner lots adjacent to boulevard and connector streets, as required, to reduce the visual impact of such structures and to enhance the appearance of important intersections where it is determined by the City that such increased setbacks are necessary to preserve the scenic qualities of the highway. Implementation Measure LU-12.a requires the City

to utilize the design review process and the Historic Preservation Ordinance to ensure the preservation of significant cultural resources.

As discussed above, all development and redevelopment associated with the project would be subject to the development and design standards for each respective zoning district (e.g., Multi-Family Residential Districts). Further, as described under Criterion 1, all new single-family residential development would be subject to the "Single-Family Residential Design Review Handbook." Requiring new development and redevelopment under the General Plan to comply with the development and design standards set forth in the Saratoga Municipal Code, would ensure that scenic resources along SR-9, County Scenic Roadways, and Heritage Lanes are preserved.

Development envisioned by the project could result in an incremental increase in new residential uses that could incrementally alter scenic resources along SR-9, County Scenic Roadways, and Heritage Lanes. However, compliance with the General Plan policies and implementation measures, and adherence to the development and design standards in the Saratoga Municipal Code, will ensure that impacts to scenic resources along SR-9, County Scenic Roadways, and Heritage Lanes, remain at less-than-significant levels.

(3) Degradation of Visual Character (Criterion 3)

The non-urbanized areas of the planning area include the low-lying foothills of the Santa Cruz Mountains, located within the western portion of the planning area. These non-urbanized areas are dominated by the following habitat types: coastal oak woodland, montane hardwood-conifer, redwood forest, chamise-redshank chaparral, coastal scrub, and blue oak woodland.

Development associated with implementation of the project could result in an incremental increase in new residential uses within non-urbanized areas. Some of the new development or redevelopment could incrementally degrade the existing visual character or quality of public views in these areas. These public views are short- and medium-range views that are available from publicly accessible viewpoints, such as from city streets or city parks.

As described above, the General Plan policies and implementation measures that minimize the alteration of foothills and ridgelines within the planning area would also minimize impacts to the visual character and quality of public views in non-urbanized areas. Further, all new single family residential development would be subject to the "Single-Family Residential Design Review Handbook," as well as Articles 15-13 and 15-20 of the Saratoga Municipal Code to maximize the preservation of open space, including major ridgelines, densely wooded areas, and riparian vegetation.

Urbanized portions of the planning area are primarily located within the central and eastern portions of the planning area. These urbanized areas are dominated by impervious surfaces (such as concrete, buildings, and roads). Vegetative cover consists of native, non-native, and ornamental plants. Valley oak woodland and valley foothill riparian habitats are interspersed throughout the urbanized areas and are found along the creeks within the planning area (Prospect, Calabazas, Rodeo, Saratoga, Wildcat, Vasona, Sobey, and San Tomas Aquino), and along the tributaries to these creeks.

All development and redevelopment under the General Plan would be subject to the development and design standards for each respective zoning district (e.g., Multi-Family Residential Districts). While the project would result in the creation of new zoning districts that would allow for an increase in the number of building stories and associated building height, these districts would be located on a limited number of sites and would be located within the urban portion of the planning area. Further, all new single-family residential development would be subject to the "Single-Family Residential Design Review Handbook."

Compliance with the General Plan policies and implementation measures, as well as adherence to the Saratoga Municipal Code, would preserve the existing visual character and quality of public views in non-urbanized areas. As such, implementation of the General Plan would result in a less-than-significant impact relative to this topic.

(4) Light and Glare (Criterion 4)

Nighttime illumination and glare impacts are the effects of a project's exterior lighting upon adjoining uses and areas. Light and glare impacts are determined through a comparison of the existing light sources with the proposed lighting plan or policies. Development envisioned by the project could result in an incremental increase in new residential uses, which in turn could incrementally increase the amount of daytime glare or nighttime lighting in the planning area.

The General Plan contains policies and implementation measures that reduce new sources of lighting and glare within the planning area. Policy LU-5.2 requires the City to evaluate development proposals against City standards and guidelines to ensure that the related traffic, noise, light, appearance, and intensity of the proposed use have limited adverse impact on the area and can be fully mitigated. Policy LU-5.4 requires the City, through the development review process, to ensure that adjoining neighborhoods are protected from noise, light, glare, and other impacts resulting from new or expanded non-residential developments.

All development and redevelopment under the General Plan would be subject to the development and design standards for each respective Zoning District (e.g., Multi-Family Residential Districts), which include standards that reduce lighting and glare impacts. For example, all new structures and certain expansions of existing structures within the Multi-Family

and Commercial Districts are subject to design review approval in accordance with Article 15-46 of the Saratoga Municipal Code. Article 15-46 requires that all architectural drawings specify all exterior surfacing materials and their colors, as well as the illumination of all signs be indicated, so that lighting and glare impacts can be determined. As detailed in Section 15-46.040 (Design Review Findings), the Planning Commission shall not grant design review approval unless it is able to make the finding that the colors of wall and roofing materials shall blend with the natural landscape and be non-reflective. Furthermore, Subsection 15-80.030(m) requires that outdoor lighting fixtures in many residential zones shall be aimed downward or shielded to prevent excessive glare and off-site illumination.

Further, all new single family residential development would be subject to the "Single-Family Residential Design Review Handbook," which contains standards to minimize impacts related to nighttime lighting and glare. For example, the Hillside Guidelines chapter requires that light sources be located at ground level, the avoidance of light sources that may be seen at a distance, and the screening of light sources. The Hillside Guidelines chapter also requires that structures be designed to avoid light, bright, or reflective colors and materials.

Despite the new and expanded sources of nighttime illumination and glare that could occur from new development, implementation of the project is not expected to generate a substantial increase in light and glare relative to existing conditions. Individual developments would continue to be subject to General Plan policies and Municipal Code provisions related to aesthetics, including potential project-level design review requirements related to light and glare. For these reasons, impacts related to an increase in nighttime light and an overall increase in lighting and glare would be less than significant.

(5) Cumulative Impacts

This section evaluates whether the impacts of the project, together with the impacts of cumulative development, would result in a cumulatively significant impact with respect to aesthetics. Significant impacts, including those associated with scenic resources, visual character, and increased light and glare would generally be site-specific and would not contribute to cumulative impacts after implementation of the General Plan policies and the provisions stated in the Saratoga Municipal Code.

Projects within the cumulative geographic context of the City of Saratoga Housing and Safety Elements, and General Plan Update include the El Paseo and 1777 Saratoga Avenue Mixed-Use Project and the Westgate West Costco Warehouse Project, both of which are located in San Jose. Both projects would have less than significant cumulative aesthetic impacts. However, cumulative development could contribute to an incremental increase in nighttime lighting and daytime glare. Cumulative development also contributes to an incremental degradation of scenic vistas, scenic highways and roadways, and public views. New development in the region could

result in further conversion of open space and mature trees. Additional development may also contribute to degradation of scenic vistas from the construction of tall structures throughout the region.

As discussed above, development associated with implementation of the project would be required to comply with General Plan policies and implementation measures, adhere to the development and design standards in the Saratoga Municipal Code, conform to the Hillside Specific Plan, and comply with the City's Tree Ordinance. Residential development would also be subject to the design review approval requirement for single-family, multi-family, and mixed-uses.

All projects within Saratoga would be required to comply with City ordinances and General Plan policies that address aesthetics, including the preservation of scenic vistas, tree protection, and minimization of lighting and glare. Similarly, cumulative development occurring outside of the City of Saratoga in San Jose would be required to comply with applicable City ordinances and City of San Jose General Plan policies that address aesthetics. Implementation of the project would not result in a considerable incremental contribution to cumulative impacts, because the city is located in a suburban developed area, the General Plan contains policies to protect aesthetics, and future development under the General Plan would be required to comply with the development and design standards set forth in the Saratoga Municipal Code related to aesthetics. The projects in San Jose are required to follow their General Plan, Zoning, and Citywide Design Standards Guidelines. Therefore, cumulative impacts would be less than significant.

IV. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

A. AESTHETICS

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B. AIR QUALITY

This section describes the current air quality conditions in the planning area and its vicinity; discusses the regulations and policies pertinent to air quality; and assesses the potentially significant impacts on the environment that could result from implementation of the project and its associated development. The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) 2017 CEQA Air Quality Guidelines (CEQA Guidelines) that were in effect at the time the project Notice of Preparation was published.¹

1. Setting

a. Regional Climate, Meteorology, and Topography

The city is located within the San Francisco Bay Area Air Basin (SFBAAB). Some air basins have natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone.

The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that generally keeps storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

The planning area is located at the northern end of the Santa Clara Valley climatological subregion, which is bounded by the Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are mild. At the northern end of the valley, mean maximum temperatures are in the low-80's during the summer and the high-50s during the winter, and mean minimum temperatures range from the high-50s in the summer to the low-40s in the winter.

¹ Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo, and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low-level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing north-westerlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the valley increases the impact of the pollutants significantly.

Pollution sources are plentiful and complex in this subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in the Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the SFBAAB.²

b. Air Pollutants of Concern

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- Ozone
- Coarse particulate matter (PM₁₀)
- Fine particulate matter (PM_{2.5})
- Nitrogen dioxide
- Carbon monoxide
- Sulfur dioxide
- Lead

² Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

Because these are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents, they are referred to as “criteria air pollutants.” In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen (NO_x) and reactive organic gases (ROG), PM₁₀, and PM_{2.5}. Regional air pollutants, such as ozone, PM₁₀, and PM_{2.5}, can be formed and/or transported over long distances and affect ambient air quality far from the emissions source. The magnitude and location of specific health effects from exposure to increased ozone, PM₁₀, and PM_{2.5} concentrations are generally the result of emissions from numerous sources throughout the SFBAAB, as opposed to a single project.

The BAAQMD and other air districts use regional air dispersion models to correlate the cumulative emissions of regional pollutants to potential community health effects. However, these dispersion models have limited sensitivity to the relatively small (or negligible) changes in criteria air pollutant concentrations associated with an individual project. Therefore, it is not feasible to provide reliable estimates of specific health risks associated with regional air pollutant emissions from an individual project.

The BAAQMD operates a network of air monitoring stations throughout the SFBAAB to monitor air pollutants such as ozone, PM₁₀, and PM_{2.5}. Table IV.B-1 presents a five-year summary for the period from 2016 to 2020 of the highest annual concentrations of ozone measured at the nearest monitoring station located at 306 University Avenue in Los Gatos, approximately 2.0 miles southeast of the planning area. The nearest station where PM₁₀ and PM_{2.5} levels are measured is located at 158 Jackson Street in San Jose, approximately 6.8 miles northeast of the planning area. Table IV.B-1 also compares measured pollutant concentrations with applicable State and federal ambient air quality standards, which are discussed further in *Regulatory Setting* below. Ozone levels exceeded the State and federal ambient air quality standards up to three days per year from 2016 to 2020. PM₁₀ levels exceeded the State and federal ambient air quality standards for up to about 30 days per year from 2016 to 2020. PM_{2.5} levels exceeded the federal air quality standards for up to about 16 days per year from 2016 to 2020.

Localized air pollutants generally dissipate with distance from the emission source and can pose a health risk to nearby populations. Toxic air contaminants (TACs), such as diesel particulate matter (DPM), are considered localized pollutants. PM_{2.5} is also considered a localized air pollutant, in addition to being considered a regional air pollutant. Air dispersion models can be used to reliably quantify the health risks to nearby receptors associated with emissions of localized air pollutants from an individual project.

The primary air pollutants of concern in the SFBAAB and their associated health risks are discussed below.

TABLE IV.B-1 AIR QUALITY TRENDS

Pollutant	Standard	2016	2017	2018	2019	2020
Ozone (O ₃)	Max 1-hour Concentration (ppm)	0.091	0.093	0.082	0.087	0.107
	Days > CAAQS (0.09 ppm)	0	0	0	0	1
	Max 8-hour Concentration (ppm)	0.066	0.076	0.067	0.078	0.086
	Days > CAAQS (0.070 ppm)	0	3	0	2	3
	Days > NAAQS (0.070 ppm)	0	3	0	2	3
Coarse Particulate Matter (PM10)	Max 24-hour Concentration (µg/m ³)	41.0	69.8	121.8	77.1	137.1
	Days > CAAQS (50 µg/m ³)	0.0	19.2	12.2	11.8	29.9
	Days > NAAQS (150 µg/m ³)	0.0	0.0	0.0	0.0	0.0
	Annual Arithmetic Mean (µg/m ³)	18.3	21.3	23.1	19.1	24.8
Fine Particulate Matter (PM2.5)	Max 24-hour Concentration (µg/m ³)	22.7	49.7	133.9	34.4	120.5
	Days > NAAQS (35 µg/m ³)	0.0	6.0	15.5	0.0	12.0
	Annual Arithmetic Mean (µg/m ³)	8.4	9.5	12.9	9.1	11.5

Notes: CAAQS = California ambient air quality standards; µg/m³ = micrograms per cubic meter; NAAQS = National ambient air quality standards; ppm = parts per million.

State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. When the measured state and national concentrations varied due to different sample methods, the highest concentration was reported in the summary table.

* This is the estimated number of days in the year that PM10 and PM2.5 would have been exceeded the air quality standard had sampling occurred every day of the year. Sampling typically occurs once every 3 or 6 days. As a result, the estimated number of days is reported to one decimal place.

Source: California Air Resources Board (CARB) 2022. iADAM: Air Quality Data Statistics; Trend Summaries. Available at: <https://www.arb.ca.gov/adam/trends/trends1.php>, accessed July 6, 2022.

(1) Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation, it can be harmful to the human respiratory system and to sensitive species of plants when it reaches elevated concentrations in the lower atmosphere. Ozone is not emitted directly into the environment but is formed in the atmosphere by chemical reactions between ROG and NO_x in the presence of sunlight. Ozone formation is greatest during periods of little or no wind, bright sunshine, and high temperatures. As a result, levels of ozone usually build up during the day and peak in the afternoon.

Sources of ROG and NO_x are vehicle tailpipe emissions; evaporation of solvents, paints, and fuels; and biogenic emissions.³ Automobiles are the single largest source of ozone precursors in the SFBAAB. Short-term ozone exposure can reduce lung function in children, facilitate respiratory infections, and produce symptoms of respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Ozone can also damage plants and trees and materials such as rubber and fabrics.

(2) Particulate Matter

PM₁₀ and PM_{2.5} consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter are naturally occurring, such as pollen, forest fires, and windblown dust. In populated areas, however, most particulate matter is caused by road dust, combustion by-products, abrasion of tires and brakes, and construction activities. Particulate matter can also be formed in the atmosphere by condensation of sulfur dioxide and ROG.

Exposure to particulate matter can affect breathing, aggravate existing respiratory and cardiovascular diseases, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

(3) Toxic Air Contaminants

TACs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index, which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

³ Biogenic sources include volatile organic compounds, which include ROG, from the decomposition of vegetative matter and certain plants, such as oak and pine trees.

In the SFBAAB, adverse air quality impacts on public health from TACs are predominantly from DPM. Emissions of DPM and PM_{2.5} generated from the exhaust of diesel-powered engines are a complex mixture of soot, ash particulates, metallic abrasion particles, volatile organic compounds, and other components that can penetrate deeply into the lungs and contribute to a range of health problems. In 1998, CARB identified DPM from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.⁴ While diesel exhaust is a complex mixture that includes hundreds of individual constituents, DPM is used as a surrogate measure of exposure, under California regulatory guidelines, for the mixture of chemicals that make up diesel exhaust as a whole. More than 90 percent of DPM is less than 1 micron in diameter and is thus a subset of PM₁₀ and PM_{2.5}.⁵ The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

c. Existing Sources and Levels of Local Air Pollution

In the Bay Area, stationary and mobile sources are the primary contributors of TACs and PM_{2.5} emissions to local air pollution. In an effort to promote healthy infill development from an air quality perspective, the BAAQMD has prepared guidance entitled Planning Healthy Places.⁶ The purpose of this guidance document is to encourage local governments to address and minimize potential local air pollution issues early in the land-use planning process, and to provide technical tools to assist them in doing so. Based on a screening-level cumulative analysis of mobile and stationary sources in the Bay Area, the BAAQMD mapped localized areas of elevated air pollution that: 1) exceed an excess cancer risk of 100 in 1 million; 2) exceed PM_{2.5} concentrations of 0.8 micrograms per cubic meter; or 3) are located within 500 feet of a freeway, 175 feet of a major roadway (with more than 30,000 annual average daily vehicle trips), or 500 feet of a ferry terminal. Within these localized areas of elevated air pollution, the BAAQMD encourages local governments to implement best practices to reduce exposure to and emissions from local sources of air pollutants. As shown by the purple and blue areas in Figure IV.B-1, elevated levels of TACs and/or PM_{2.5} pollution may currently exist near gas stations and in the vicinity of mobile sources located along SR-85, SR-9, Quito Road, Prospect Road, and Lawrence Expressway.

⁴ California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

⁵ California Air Resources Board (CARB), 2016. Overview: Diesel Exhaust and Health. Available at: <https://www.arb.ca.gov/research/diesel/diesel-health.htm>, accessed January 13, 2017. Last updated April 12, 2016.

⁶ Bay Area Air Quality Management District (BAAQMD), 2016. Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning, May.

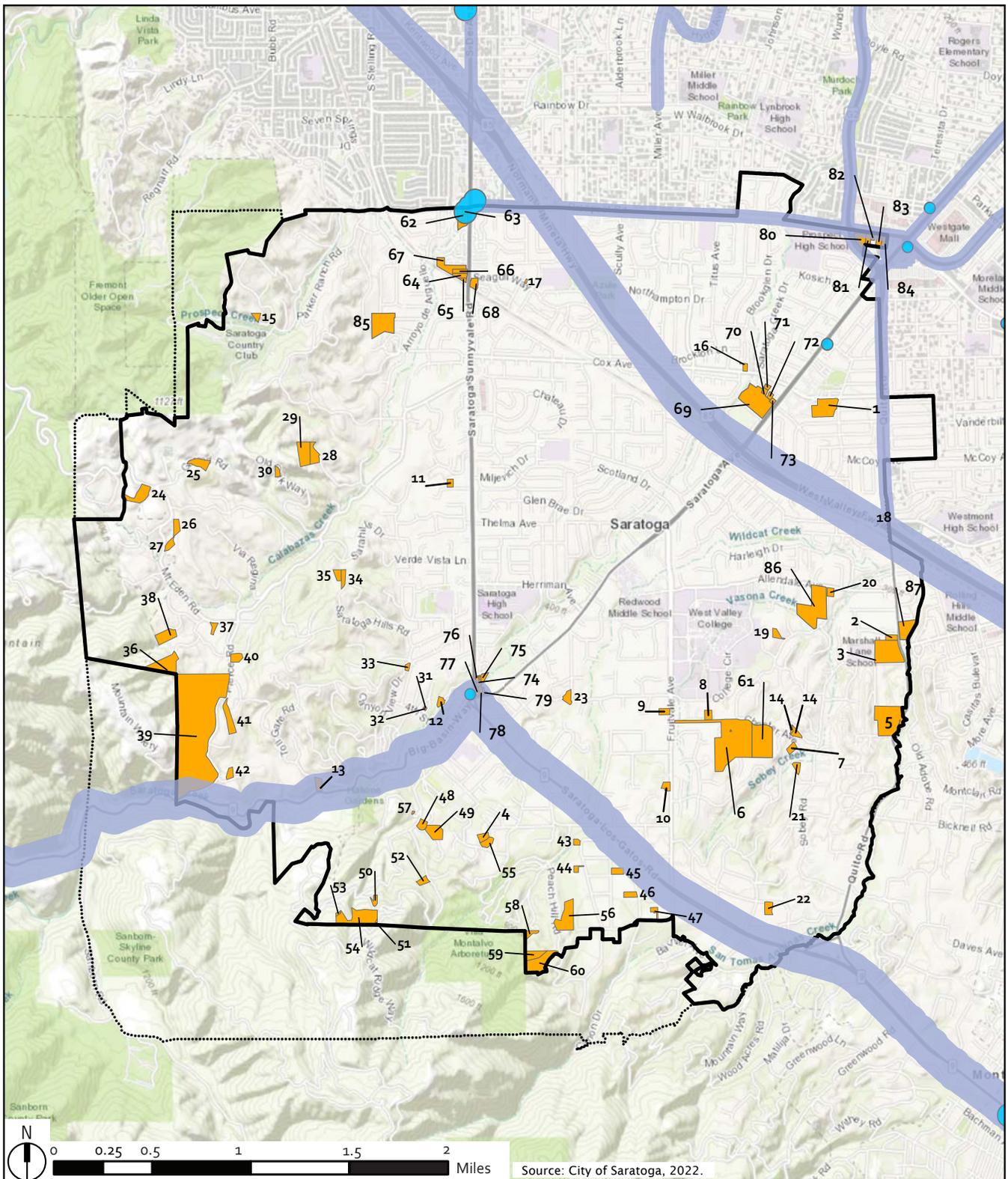


Figure IV.B-1

Localized Areas of Elevated Pollution

d. Existing Sensitive Receptors

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants. The current land uses within the city are described in *Section IV.I, Land Use, Agriculture, and Forestry Resources*.

2. Regulatory Setting

a. Federal, State, and Local Regulations

The federal EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by CARB and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

The CAAQS and NAAQS, which were developed for criteria air pollutants, are intended to incorporate an adequate margin of safety to protect the public health and welfare. California also has ambient air quality standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. To achieve CAAQS, criteria air pollutant emissions are managed through control measures described in regional air quality plans as well as emission limitations placed on permitted stationary sources.

In accordance with the federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the NAAQS and CAAQS for each criterion air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB.

Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM₁₀, and PM_{2.5}, and is designated an attainment or unclassified area for all other pollutants (see Table IV.B-2).

TABLE IV.B-2 AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	CAAQS		NAAQS	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8-Hour	0.070 ppm	N	0.070 ppm	N
	1-Hour	0.09 ppm	N	Revoked in 2005	---
Carbon Monoxide	8-Hour	9.0 ppm	A	9 ppm	A
	1-Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1-Hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	---	0.053 ppm	A
Sulfur Dioxide	24-Hour	0.04 ppm	A	0.14 ppm	A
	1-Hour	0.25 ppm	A	0.075 ppm	A
	Annual	---	---	0.030 ppm	A
Coarse Particulate Matter (PM ₁₀)	Annual	20 µg/m ³	N	---	---
	24-Hour	50 µg/m ³	N	150 µg/m ³	U
Fine Particulate Matter (PM _{2.5})	Annual	12 µg/m ³	N	12 µg/m ³	U/A
	24-Hour	---	---	35 µg/m ³	N
Sulfates	24-Hour	25 µg/m ³	A	---	---
	30-Day	1.5 µg/m ³	A	---	---
Lead	Calendar Quarter	---	---	1.5 µg/m ³	A
	Rolling 3-Month	---	---	0.15 µg/m ³	A
Hydrogen Sulfide	1-Hour	0.03 ppm	U	---	---
Vinyl Chloride	24-Hour	0.010 ppm	U	---	---
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	---	U	---	---

Notes: A = Attainment; N = Nonattainment; U = Unclassified; “---” = not applicable; ppm = parts per million; µg/m³ = micrograms per cubic meter; PST = Pacific Standard Time.

Source: Bay Area Air Quality Management District (BAAQMD), 2017. Air Quality Standards and Attainment Status. Available at: <http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>, accessed May 30, 2019. Last updated January 5, 2017.

Regulation of TACs, referred to as hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, State, and local controls on individual sources. The air toxics provisions of the federal Clean Air Act require the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects to protect public health and welfare, and to establish National Emission Standards for Hazardous Air Pollutants. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act created California's program to identify and reduce exposure to TACs. To date, the CARB has identified over 21 TACs and adopted the EPA's list of 188 HAPs as TACs. The Hot Spots Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

b. Bay Area Air Quality Management District Responsibilities

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD also awards grants to reduce motor vehicle emissions and conducts public education campaigns and other activities associated with improving air quality within the SFBAAB.

The demolition of existing buildings and structures are subject to BAAQMD's Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing), which limits asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos and contains additional requirements. The rule requires the lead agency and its contractors to notify the BAAQMD of any regulated renovation or demolition activity. The notification must include a description of the affected structures and the methods used to determine the presence of asbestos-containing materials. All asbestos-containing material found on site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, which includes specific requirements for surveying, notification, removal, and disposal of materials that contain asbestos. Implementation of Regulation 11, Rule 2 ensures that asbestos-containing materials are disposed of appropriately and safely.

The BAAQMD's CEQA Guidelines include thresholds of significance to assist lead agencies in evaluating and mitigating air quality impacts under CEQA.⁷ The BAAQMD's thresholds establish levels at which emissions of ozone precursors (ROG and NO_x), PM₁₀, PM_{2.5}, TACs, and odors could cause significant air quality impacts. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.⁸

c. Bay Area Clean Air Plan

In accordance with the California Clean Air Act, the BAAQMD is required to prepare and update an air quality plan that outlines measures by which both stationary and mobile sources of pollutants can be controlled to achieve the NAAQS and CAAQS in areas designated as nonattainment. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP).⁹ The 2017 CAP includes 85 control measures to reduce ozone precursors, particulate matter, TACs, and greenhouse gases (GHGs). The 2017 CAP was developed based on a multi-pollutant evaluation method that incorporates well-established studies and methods of quantifying health benefits; air quality regulations; computer modeling and analysis of existing air quality monitoring data and emissions inventories; and traffic and population growth projections prepared by the Metropolitan Transportation Commission and the Association of Bay Area Governments, respectively.

d. Saratoga General Plan

The Saratoga General Plan includes the following relevant policies and implementation measures (IMs) that assist in reducing or avoiding potential impacts related to air quality.

Land Use Element

Policy LU-15.1: Require development projects to comply with Bay Area Air Quality Management District (BAAQMD) measures to reduce fugitive dust emissions due to grading and construction activities.

IM LU-15.a: Revise standard conditions of approval to require that all projects comply with BAAQMD dust emission reduction measures and to encourage trip demand measures for major non-residential projects.

⁷ Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

⁸ Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Significance, October.

⁹ Bay Area Air Quality Management District (BAAQMD), 2017. 2017 Clean Air Plan: Spare the Air, Cool the Climate, April 19.

Policy LU-15.2: Encourage use of trip demand measures as part of major commercial and office development projects to reduce dependence on auto use.

Policy LU-15.3: Require compliance with BAAQMD's guidelines for wood-burning fireplaces.

IM LU-15.b: Amend the Zoning Ordinance to adopt the Bay Area Air Quality Management District's Model Ordinance for Wood Burning Devices to prohibit in Saratoga the installation of new indoor or outdoor wood burning fireplaces in accordance with the BAAQMD's guidelines for wood-burning devices.

Policy LU-15.4: Strive to improve air quality and reduce greenhouse gas emissions through a multi-pronged approach, including coordination with regional agencies, project-level review for new development proposals, and public education programs.

IM LU-15.c: Promote, on the City website and through other means, the Silicon Valley Clean Energy service that provides clean and renewable electricity choices to residents.

IM LU-15.d: Continue to partner with Our City Forest and promote, on the City website and through other means, local tree planting initiatives and efforts.

IM LU-15.e: Establish a public education program providing information on ways to reduce and control emissions; and continue to provide information about alternative commutes, carpooling, and restricting exacerbating activities on "Spare the Air" high-emission days.

Circulation and Scenic Highway Element

Policy CI-1.3: Provide safe, convenient, and comfortable routes for walking, bicycling, and public transportation that encourage increased use of these modes of transportation, enable convenient travel as part of daily activities, improve the public welfare by addressing a wide array of health and environmental problems, and meet the needs of all users of the streets, including children, older adults, and people of disabilities.

Policy CI-2.1: Make efficient use of existing transportation facilities and strive to reduce the total number of vehicle miles traveled through the arrangement of land uses, improved facilities for non-automobile modes, and enhanced integration of various transportation systems.

Policy CI-2.3: Develop, implement, and update as necessary Citywide multi-modal transportation impact analysis (TIA) guidelines that are complimentary with Santa Clara Valley Transportation Authority's (VTA's) TIA guidelines and require development projects to mitigate and reduce their respective traffic, multi-modal, and parking impacts.

Policy CI-2.8: Design new local streets to reduce travel distance, promote alternative modes, and provide a more even distribution of traffic.

Policy CI-2.12: Focus future improvements on the most congested intersections to maintain an acceptable level of mobility for all modes of transportation.

Policy CI-4.1: Coordinate with the Valley Transportation Authority to increase service range and frequency within the City per VTA's Transit Sustainability Policy.

Policy CI-4.2: Install transit improvements (such as shelters, benches, and schedules) to improve service, increase safety, and maintain traffic flow on streets serving as transit routes.

Policy CI-4.3: Encourage the public school districts, private schools, recreation groups or other operators to develop a local bus system and to expand ride-sharing activities that will help to reduce school-generated vehicle traffic in neighborhoods and on City streets. Bussing should be one of the first measures considered, along with walking and biking, to reduce school-generated traffic before substantial roadway capacity enhancements are implemented.

Policy CI-4.4: Investigate the feasibility of a local shuttle service within Saratoga to reduce local traffic volumes on City streets and overall parking demand. The feasibility study shall identify potential routes and funding sources.

Policy CI-5.1: Develop and maintain a comprehensive and integrated system of bikeways that promote bicycle riding for commuting and recreation.

Policy CI-5.2: Integrate the City of Saratoga bikeways system with the bikeways system of adjacent communities, where economically feasible.

Policy CI-5.3: Pursue the expansion and continuation of the multi-use path along the Union Pacific Railroad alignment (Joe's trail) east of Saratoga Avenue and west of Saratoga-Sunnyvale Road that will link the Stevens Creek Recreational Trail in Cupertino with the Los Gatos Creek Trail in Los Gatos.

Policy CI-5.4: Pursue other potential rights-of-way such as Santa Clara Valley Water District and utility easements for bicycle, pedestrian, and/or equestrian trail development.

Policy CI-5.5: Provide safe and direct pedestrian routes and bikeways between and through residential areas linking transit centers and important community centers such as local school facilities and the Village.

Policy CI-5.6: Improve pedestrian and bicycle access to all public and private schools to enhance safety.

Policy CI-5.8: Develop a set of practical and realistic transportation demand management (TDM) measures that can be used by employers in the City to reduce the number of single-occupant vehicle trips. These measures would encourage ride-sharing and transit alternatives.

Policy CI-7.4: Encourage the use of carpools and vanpools by providing preferential spaces as appropriate.

3. Impacts and Mitigation Measures

This section analyzes the impacts related to air quality resources that would result from implementation of the project. The air quality-related policies and implementation actions for the project are essentially the same as previous existing policies and implementation actions in the General Plan; therefore, no air quality-related impacts from updating the policies or implementation actions of the General Plan would occur. Future residential development under the project would be directly supported by the following three policies: HE 1.3, LU-15.1, LU-15.3. Other policies summarized within the above *Regulatory Setting* section of this section would not directly support future residential development but would provide air quality benefits on a citywide scale (e.g., improving public transit and encouraging non-automobile modes of transportation).

This section begins with the criteria of significance and establishing the thresholds to determine whether an impact is significant. The latter part of this section describes potential impacts associated with the project and identifies mitigation measures to address these impacts, as needed.

a. Significance Criteria

According to the CEQA Guidelines Appendix G, the project will have a significant impact related to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

b. Analysis and Findings

The following impact analysis is based on an assessment of baseline conditions for the planning area, including regional and local air quality conditions. This analysis identifies potential impacts based on the interaction between the affected environment and construction and operation activities related to future residential development that could occur under the project.

Potential air quality impacts associated with future residential development under the project are evaluated in accordance with the BAAQMD’s CEQA Guidelines.¹⁰ For communitywide planning documents (e.g., general plans), BAAQMD recommends that local governments demonstrate compliance with the plan-level thresholds summarized in Table IV.B-3, below.

TABLE IV.B-3 BAAQMD’S PLAN-LEVEL THRESHOLDS OF SIGNIFICANCE FOR AIR QUALITY

Impact Analysis	Threshold
Criteria Air Pollutants and Precursors	Construction: None Operational: Consistency with current air quality plan and projected vehicle miles travelled or vehicle trip increase is less than or equal to projected population increase.
Local Community Risk and Hazards	Land use diagram identifies special overlay zones around existing and planned sources of TACs and PM2.5, including special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways, and plan identifies goals, policies, and objectives to minimize potentially adverse impacts.
Odors	Identify locations of odor sources in plan; identify goals, policies, and objectives to minimize potentially adverse impacts.

Source: Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

For individual housing developments proposed under the project, the BAAQMD recommends using their project-level thresholds of significance to identify levels at which individual projects could cause significant air quality impacts related to emissions of ozone precursors (ROG and NOx), PM10, PM2.5, and TACs. The BAAQMD’s recommended project-level thresholds are summarized in Table IV.B-4.

¹⁰ Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

TABLE IV.B-4 BAAQMD’S PROJECT-LEVEL THRESHOLDS OF SIGNIFICANCE FOR AIR QUALITY

Impact Analysis	Pollutant	Threshold
Regional Air Quality (Construction)	ROG	54 pounds/day (average daily emission)
	NO _x	54 pounds/day (average daily emission)
	Exhaust PM10	82 pounds/day (average daily emission)
	Exhaust PM2.5	54 pounds/day (average daily emission)
	Fugitive dust (PM10 and PM2.5)	Best management practices
Regional Air Quality (Operation)	ROG	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	NO _x	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	Exhaust PM10	82 pounds/day (average daily emission) 15 tons/year (maximum annual emission)
	Exhaust PM2.5	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	Exhaust PM2.5 (project)	0.3 µg/m ³ (annual average)
Local Community Risks and Hazards (Operation and/or Construction)	TACs (project)	Cancer risk increase > 10 in one million Chronic hazard index > 1.0
	Exhaust PM2.5 (cumulative)	0.8 µg/m ³ (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Note: ROG = reactive organic gases; NO_x = oxides of nitrogen; PM10 = coarse particulate matter; PM2.5 = fine particulate matter; µg/m³ = micrograms per cubic meter

Source: Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

(1) Consistency with the BAAQMD Clean Air Plan (Criterion 1)

The BAAQMD’s 2017 CAP is the applicable air quality plan for projects located in the SFBAAB. Consistency may be determined by evaluating whether the project supports the primary goals of the 2017 CAP, including applicable control measures contained within the 2017 CAP, and would not conflict with or obstruct implementation of any 2017 CAP control measures. The primary goals of the 2017 CAP are the attainment of ambient air quality standards and reduction of population exposure to air pollutants for the protection of public health in the Bay Area.

The 2017 CAP includes control measures that aim to reduce air pollution and GHGs from stationary, area, and mobile sources. The control measures are organized into nine categories: stationary sources, transportation, buildings, energy, agriculture, natural and working lands, waste, water, and super-GHG pollutants (e.g., methane, black carbon, and fluorinated gases).

As described in Table IV.B-5, the project would be consistent with applicable control measures from the 2017 CAP. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

TABLE IV.B-5 PROJECT CONSISTENCY WITH BAAQMD’S 2017 CAP

Control Measures	Project Consistency
Stationary Source	The stationary source measures, which are designed to reduce emissions from stationary sources, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD’s Permit and Inspection programs. Future development in the city would be subject to the BAAQMD’s permitting requirements for stationary sources. Therefore, the project would be consistent with the stationary source control measures.
Transportation	The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. Implementation of General Plan policies LU-15.2, CI 1.3, CI 2.1, CI 2.3, CI 2.12, CI 4.1 through 4.6, CI 5.1. through 5.7, and CI 7.4 support the use of non-motorized transportation to reduce vehicle miles travelled. Therefore, the project would be consistent with the transportation control measures.
Energy	The energy control measures are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures primarily apply to electrical utility providers, the energy control measures are not applicable to the project. However, it should be noted that General Plan Policies HE 1.3 and LU 15.4 encourage energy efficiency and conservation in buildings, as well as the purchase of clean and renewable electricity.
Buildings	The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves. Therefore, the building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best practices and policies to control GHG emissions. Future projects within the City will be required to meet the minimum code efficiency requirements for the Title-24 Building Energy Efficiency Standards and Policy HE 1.3 encourages energy efficiency and conservation in buildings. Therefore, the project would be consistent with the buildings control measures.
Agriculture	The agriculture control measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the agriculture control measures are not applicable to the project.
Natural and Working Lands	The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the natural and working lands control measures are not applicable to the project.
Waste Management	The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and

TABLE IV.B-5 PROJECT CONSISTENCY WITH BAAQMD’S 2017 CAP

Control Measures	Project Consistency
	recycle. Future development under the project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the waste management control measures.
Water	The water control measures to reduce emissions from the water sector will reduce emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the water control measures are not applicable to the project.
Super GHGs	The super-GHG control measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual developments, the super-GHG control measures are not applicable to the project.

Source: Baseline, 2022.

(2) Emissions of Criteria Air Pollutants (Criterion 2)

Plan-Level Emissions

According to the BAAQMD’s plan-level thresholds, operational-related criteria air pollutant and precursor impacts would be less than significant if the projected rate of increase in vehicle miles traveled (VMTs) is less than or equal to the rate of increase in population. The BAAQMD considers reductions in VMT a key strategy for achieving the federal and State ambient air quality standards for ozone, PM₁₀, and PM_{2.5}.

The existing residential population and associated VMT in the city and the future residential population and associated VMT at full buildout under the project are described in *Section IV.N, Transportation*. The estimated net increase in residential population and residential VMT are summarized in Table IV.B-6.

TABLE IV.B-6 SUMMARY OF EXISTING AND PLUS PROJECT POPULATION AND VEHICLE MILES TRAVELED

	Existing Conditions (2022)	Existing Conditions + Project (2040)	Net Increase
Population	33,905	39,608	16%
Vehicle Miles Travelled	571,019	656,986	15%

Note: See estimated population and VMT report in Table IV.N-2 in *Section IV.N, Transportation*.

Source: Appendix D.

The City's population with full buildout of the project is anticipated to increase 16 percent. At full buildout of the project, the existing Citywide VMT is anticipated to increase 15 percent. As a result, the project induced VMT and associated criteria air pollutant emissions would increase at a lower rate than the population growth. Therefore, implementation of the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant at the plan level.

Project-Level Construction Emissions

Construction activities for future residential developments under the project would generate criteria air pollutant emissions that could potentially affect regional air quality. During construction, the primary pollutant emissions of concern would be ROG, NO_x, PM₁₀, and PM_{2.5} from the exhaust of off-road construction equipment and on-road construction vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive dust emissions of PM₁₀ and PM_{2.5} would be generated by soil disturbance and demolition activities, and fugitive ROG emissions would result from the application of architectural coatings and paving.

The generation of fugitive dust PM₁₀ and PM_{2.5} emissions from soil disturbance and demolition activities could result in a cumulatively considerable net increase in regional PM₁₀ and PM_{2.5} concentrations. General Plan Policy LU-15.1 requires future development projects to implement the BAAQMD's recommended dust control measures during construction. The BAAQMD considers implementation of best management practices (BMPs) to control dust during construction sufficient to reduce potential dust impacts to a less-than-significant level. Implementation of dust control measures under General Plan Policy LU-15.1 would satisfy the BAAQMD's requirement for BMPs during construction. Therefore, the increase in PM₁₀ and PM_{2.5} concentrations from dust generated during construction activities for residential developments under the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

The generation of ROG, NO_x, PM₁₀, and PM_{2.5} emissions from the exhaust of off-road construction equipment and on-road vehicles and fugitive ROG emissions from the application of architectural coatings and paving could result in a cumulatively considerable net increase in criteria air pollutants. According to the BAAQMD's screening criteria,¹¹ construction of individual residential developments with more than 114 single-family units or more than 240 multi-family units could potentially exceed the BAAQMD's project-level thresholds of significance for criteria air pollutants (see Table IV.B-4). According to the Housing Sites Inventory, there is no single housing site where the construction of single-family units could result in more than 114 single-

¹¹ Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

family residential units being developed. However, there is a housing site where construction of multi-family housing could exceed 240 units in one location (the potential consolidated development of Sites 69-73 identified by the Housing Element Update. Together these sites are estimated to potentially accommodate the development of up to 293 multi-family housing units).

Impact AIR-1: Construction of development under the project could generate criteria air pollutant emissions that could potentially affect regional air quality. (S)

To address construction emissions of criteria air pollutant emissions from future housing developments, the following mitigation should be implemented:

Mitigation Measure AIR-1: Construction Controls for Criteria Air Pollutants. For construction of residential projects with more than 114 single-family units or 240 multi-family units, the project applicant shall retain a qualified air quality consultant to prepare an air quality analysis that identifies measures to reduce the project's criteria air pollutant and precursor emissions below the Bay Area Air Quality Management District's (BAAQMD's) recommended thresholds of significance. Emission reduction measures may include, but are not limited to, the use of off-road equipment with engines that meet the Environmental Protection Agency's Tier 4 emission standards or engines retrofitted with the most effective Verified Diesel Emissions Control Strategy (VDECS) certified by the California Air Resources Board (CARB). Quantified emissions and identified reduction measures shall be submitted to the City (and BAAQMD if specifically requested) in an air quality analysis for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction.

In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) that incorporates all recommendations and measures from the air quality analysis referenced above for all identified criteria air pollutant reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.
- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. (LTS)

Implementation of Mitigation Measure AIR-1 would ensure that the generation of ROG, NO_x, PM₁₀, and PM_{2.5} emissions from the exhaust of off-road construction equipment and on-road vehicles and fugitive ROG emissions for residential developments under the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

Implementation of General Plan Policy LU-15.1, which requires dust control, and Mitigation Measure AIR-1 would ensure that the construction of individual residential developments under the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant with mitigation at the project level.

Project-Level Operation Emissions

Operation of future residential developments under the project could generate criteria air pollutant emissions that could potentially affect regional air quality. During operation, the primary pollutant emissions of concern would be ROG, NO_x, PM₁₀, and PM_{2.5} from mobile sources, energy use, area sources (e.g., consumer products and architectural coatings), and stationary sources. It is possible that individual development projects, if large enough, could result in significant effects related to emissions of criteria air pollutants, even if the overall plan-level analysis is determined to have a less-than-significant impact.

According to the BAAQMD's screening criteria,¹² operation of an individual residential development with more than 325 single-family units or more than 451 multi-family units could potentially exceed the BAAQMD's project-level thresholds of significance for criteria air pollutants (see Table IV.B-4). According to the Housing Sites Inventory, there are no single sites where the maximum housing capacity could exceed the BAAQMD's screening criteria. Therefore, operation of individual residential developments under the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant at the project level.

(3) Exposure of Sensitive Receptors to Toxic Air Contaminants (Criterion 3)

As discussed above in *Existing Sources and Levels of Local Air Pollution*, the BAAQMD's Planning Healthy Places guidance¹³ has mapped local areas with elevated levels of TAC and/or PM_{2.5}

¹² Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

¹³ Bay Area Air Quality Management District (BAAQMD), 2016. Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning, May.

pollution (Figure IV.B-1, as updated by BAAQMD). As part of the BAAQMD's Planning Healthy Places guidance, the BAAQMD will maintain and update mapping of local air pollution over time. At present, areas with elevated air pollution from mobile sources are currently mapped along SR-85, SR-9, Quito Road, Prospect Road, and Lawrence Expressway. These areas of elevated air pollution exceed an excess cancer risk of 100 in a million or PM_{2.5} concentrations of 0.8 micrograms per cubic meter, or are located within 500 feet of a freeway, or 175 feet of a major roadway (>30,000 annual average daily traffic).

According to the Housing Sites Inventory, there are currently 17 housing sites proposed in areas with elevated levels of TACs and/or PM_{2.5} pollution (Sites 13, 18, 39, 45, 62, 63, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84). Future residential development within the planning area would generate TACs and PM_{2.5} emissions from vehicle trips and emergency generators (if required), which could substantially contribute to the existing poor air quality in the planning area and expose sensitive receptors to substantial pollutant concentrations. According to the Office of Environmental Health Hazard Assessment (OEHHA), exposure to local air pollutants from temporary emission sources lasting less than 6 months should not be evaluated due to the uncertainty in assessing cancer risk from very short-term exposures.¹⁴

Impact AIR-2: Construction of development under the project could expose sensitive receptors to substantial concentrations of TACs and/or PM_{2.5}. (S)

Measures to mitigate the above impact shall include the following requirements to address health risks related to the generation of TACs and PM_{2.5} during construction and operation of future developments under the project:

Mitigation Measure AIR-2: The following measures shall be incorporated to reduce this impact:

AIR-2a: Residential Construction Controls for Diesel Particulate Matter. In the areas defined as needing "Best Practices" or "Further Study" on the BAAQMD's Planning Healthy Places Map (see <https://www.baaqmd.gov/plans-and-climate/planning-healthy-places> and Figure IV.B-1), for construction of residential projects with five or more units and commercial development of 10,000 square feet or more with a construction duration greater than 6 months, the project applicant shall apply **one** of the following two measures:

- i) The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the Office of Environmental Health Hazard Assessment to determine the health risks to sensitive

¹⁴ Office of Environmental Health Hazard Assessment (OEHHA), 2015. Guidance Manual for Preparation of Health Risk Assessments. February.

receptors exposed to diesel particulate matter (DPM) from project construction emissions. The HRA shall be submitted to the City (and BAAQMD if specifically requested) for review and approval. If the HRA concludes that the health risks are at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risks exceed acceptable levels, DPM reduction measures shall be identified to reduce the health risks to acceptable levels. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction.

- ii) All off-road diesel equipment shall be equipped with the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.

In addition, in the areas mapped as described above, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.
- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract.

AIR-2b: Residential Emergency Generators. Require all new emergency generators to use best available control technology for air pollutant emissions, such as using engines that meet the Environmental Protection Agency's Tier 4 Final emission standards or are battery-powered.

Mitigation Measure AIR-2 essentially requires the use of best available control technologies for air pollutant emissions or a quantitative analysis that demonstrates how alternative control measures could reduce health risks below the applicable thresholds. Therefore, implementation of Mitigation Measure AIR-2 would ensure that impacts from future

developments under the project would be less than significant related to plan- and project-level generation of TACs and PM_{2.5}. (LTS)

(4) Odors (Criterion 4)

Future developments under the project would not be expected to generate significant odors because residences do not include the handling or generation of noxious materials. Therefore, the project would have no impact related odors and other emissions.

c. Cumulative Air Quality Impacts

(1) Criteria Pollutants

According to the BAAQMD, regional air pollution is largely a cumulative impact. No single project is sufficient in size to independently create regional nonattainment of ambient air quality standards. As described above in *Emissions of Criteria Air Pollutants (Criterion 2)*, emissions of criteria air pollutants from the project would not result in a significant impact at the plan- or project-level. Therefore, the cumulative impact from the project would be less than significant for criteria air pollutant emissions.

(2) Toxic Air Contaminants

The BAAQMD's Planning Healthy Places map of local air pollution (Figure IV.B-1, as updated by BAAQMD) and Mitigation Measures AIR-1 and AIR-2 function as an overlay zone with specific requirements for construction to reduce the generation TACs and PM_{2.5} in areas with elevated air pollution. Therefore, impacts associated with implementation of the project combined with development in areas surrounding the planning area (e.g., the El Paseo and 1777 Saratoga Ave Mixed Use Village and Costco Westgate projects) would be less than significant related to the cumulative air quality impacts of TACs.

(3) Odors

As described above in *Odors (Criterion 4)*, future developments under the project would not be expected to generate significant odors because residences do not include the handling or generation of noxious materials. Therefore, impacts associated with implementation of the project would be less than significant related to the cumulative air quality impacts of odors and other emissions.

C. BIOLOGICAL RESOURCES

This section describes the existing biological resources within the Saratoga planning area, including special-status plant and wildlife species, sensitive habitats, regulated waterways and wetlands, mature native trees, and wildlife movement corridors. This section also evaluates both project impacts and cumulative impacts to biological resources that are anticipated to occur from implementation of the project.

Biological resources were identified through a review of available background information provided by Coast Ridge Ecology (see *Appendix B, Coast Ridge Ecology Documentation*) and LSA Associates, which included the following:

- California Wildlife Habitat Relationships System;
- California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDDB) for reported occurrences of special-status vegetation communities, plants, and animals;
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California;
- International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species;
- United States Fish and Wildlife (USFWS) Information for Planning and Consultation (PAC); and
- eBird online database of bird distribution and abundance.

1. Setting

The City of Saratoga is surrounded by the communities of Cupertino, San Jose, Campbell, Monte Sereno, and Los Gatos, which are mostly urbanized. The westerly portion of the planning area occupies low-lying foothills of the Santa Cruz Mountains and is adjacent to unincorporated properties within Santa Clara County. Three creeks originate in the foothills of the Santa Cruz Mountains and flow in a northern direction (see Figure IV.C-1). San Tomas Aquino Creek flows along the southwestern and western portions; the major tributaries to this creek include Wildcat, Vasona, and Sobey Creeks. Saratoga Creek flows from southwestern Saratoga to northeastern Saratoga, bisecting the central portion of the city; the major tributaries to this creek include Aubry and Sanborn Creeks. Prospect, Calabazas, and Rodeo Creeks are located within the northwestern portion and freshwater ponds are dispersed throughout.

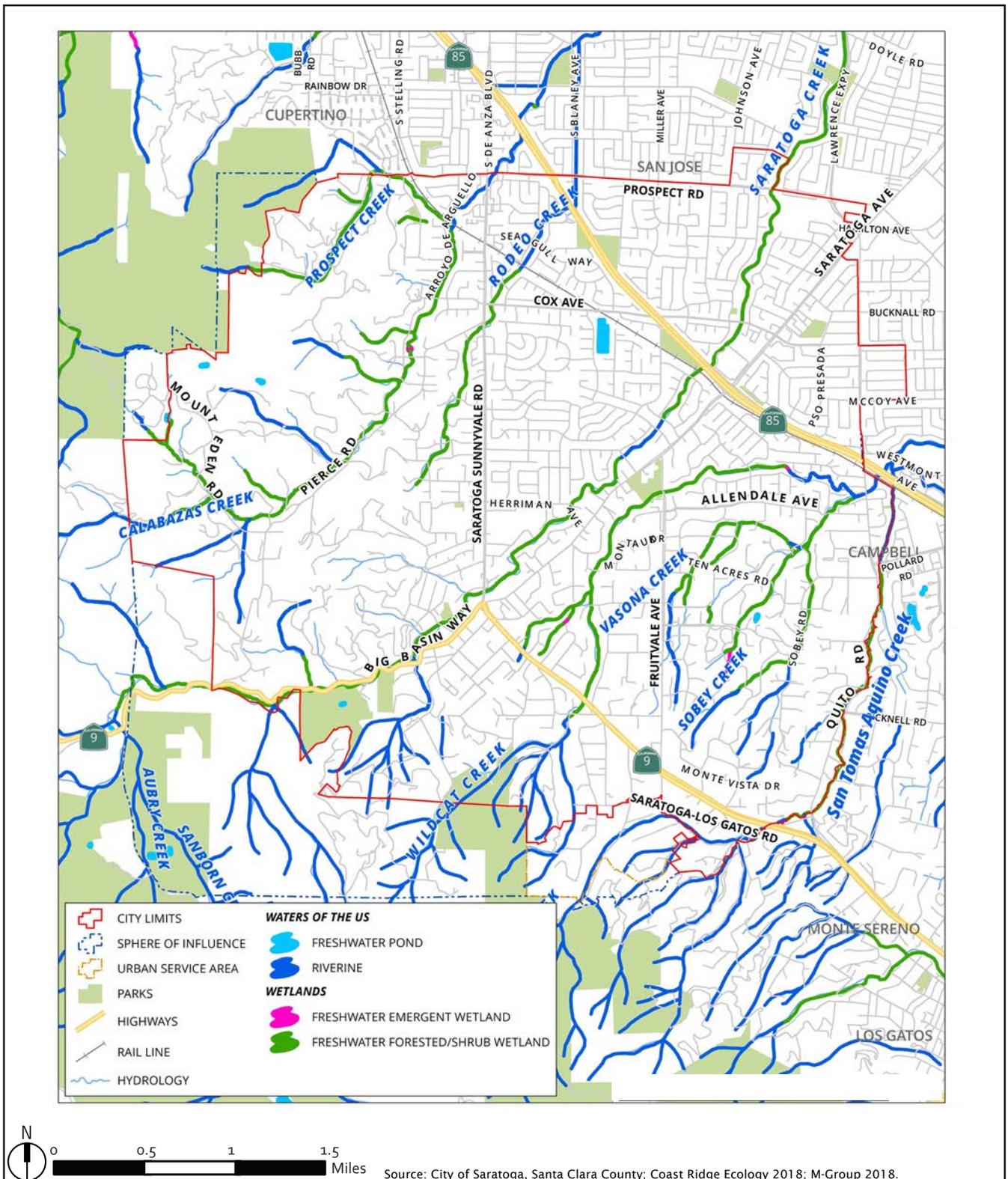


Figure IV.C-1
Creeks and Waterways

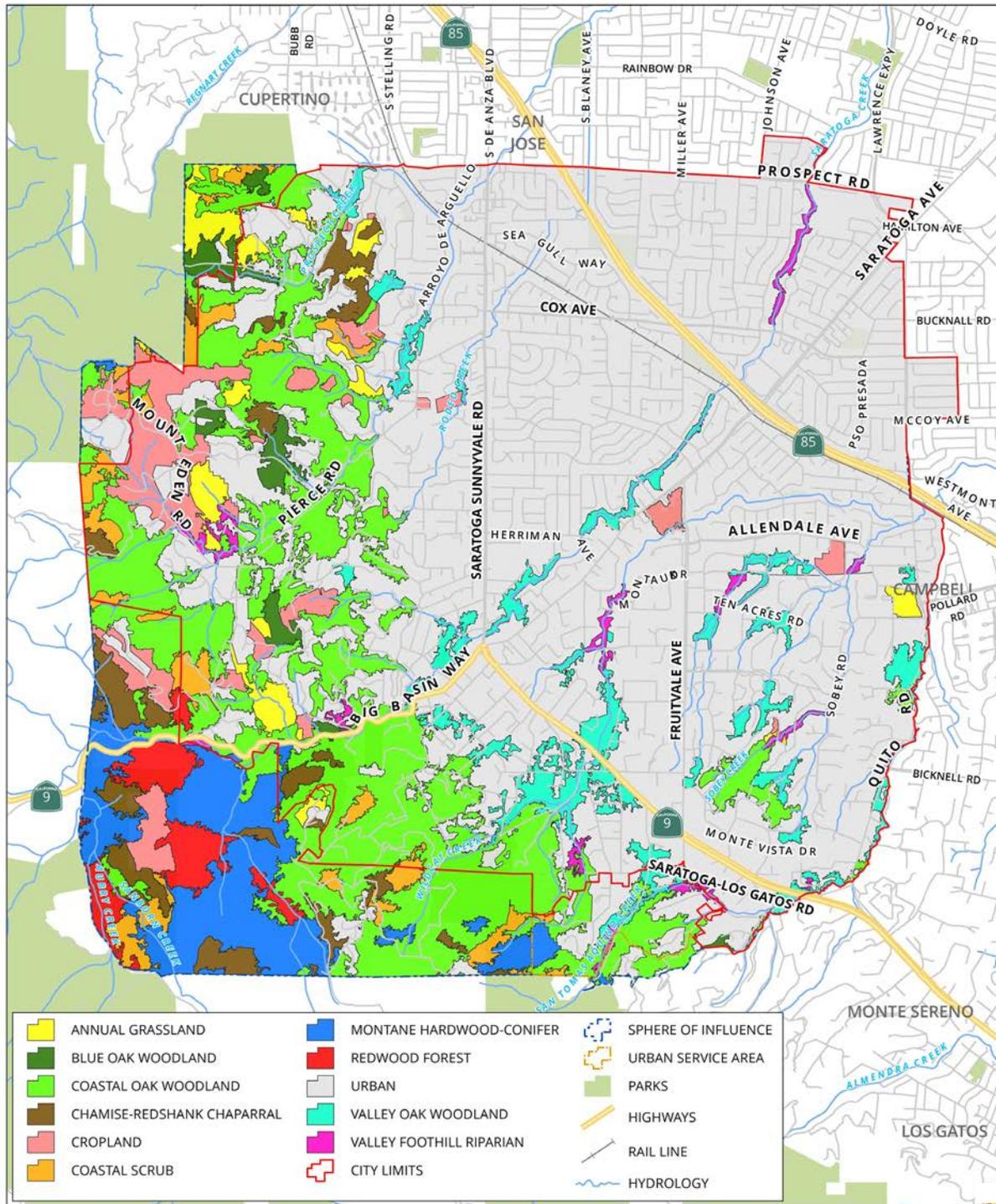
a. California Wildlife Habitat Relationships System

The California Wildlife Habitat Relationships (CWHR) is an information system based on current published and unpublished biological information and professional judgment by recognized experts on California's wildlife. CWHR contains life history, geographic range, habitat relationships, and management information on amphibians, reptiles, birds, and mammals known to occur in the state. According to the CWHR, there are 11 habitat types in the planning area. Table IV.C-1 identifies the habitat type, dominant native species, acreage of the habitat type, and the percentage of each habitat type relative to the total acreage. Figure IV.C-2 illustrates the general locations of each habitat type.

TABLE IV.C-1 HABITAT TYPES – CALIFORNIA WILDLIFE HABITAT RELATIONSHIP SYSTEM

Habitat Type	Dominant Native Species in Cover Categories	Acreage	Percentage
Blue Oak Woodland	Blue oak (<i>Quercus douglasii</i>)	103	1.0%
Coastal Oak Woodland	Coast live oak (<i>Quercus agrifolia</i>) California bay (<i>Umbellularia californica</i>) Douglas fir (<i>Pseudotsuga menziesii</i>)	1,737	17.4%
Montane Hardwood-Conifer	Coast live oak (<i>Quercus agrifolia</i>) Tan oak (<i>Notholithocarpus densiflorus</i>) Coast redwood (<i>Sequoia sempervirens</i>)	475	4.8%
Redwood Forest	Coast redwood (<i>Sequoia sempervirens</i>) Douglas fir (<i>Pseudotsuga menziesii</i>)	160	1.6%
Valley Oak Woodland	Valley oak (<i>Quercus lobata</i>)	390	3.9%
Valley Foothill Riparian	Cottonwood (<i>Populus spp.</i>) California sycamore (<i>Platanus racemosa</i>) Valley oak (<i>Quercus lobata</i>)	83	0.8%
CHAMISE-REDSHANK CHAPARRAL	Chamise (<i>Adenostoma fasciculatum</i>)	241	2.4%
Coastal Scrub	California sagebrush, (<i>Artemisia californica</i>) Coyote brush (<i>Baccharis pilularis</i>)	218	2.2%
Annual Grassland	Wild oats (<i>Avena spp.</i>) Ripgut brome (<i>Bromus diandrus</i>) Soft chess (<i>Bromus hordeaceus</i>) Red brome (<i>Bromus madritensis</i>)	174	1.7%
Cropland	--	359	3.6%
Urban	--	6,055	60.6%
Total		9,995	100%

Source: CALVEG GIS data, edited by Coast Ridge Ecology, 2018 and California Wildlife Habitat Relationship System, 2014.



Source: City of Saratoga, Santa Clara County; CALVEG, Edited by Coast Ridge Ecology 2018; M-Group 2018.

Figure IV.C-2
Habitat Types

(1) Blue Oak Woodland

Blue oak woodlands are dominated by blue oaks (*Quercus douglasii*), which make up 85 to 100 percent of the tree canopy cover. The habitat is similar to a savannah, with a canopy layer comprised of scattered oaks between 16 to 50 feet tall, and an herbaceous understory dominated by annual grasses such as brome (*Bromus spp.*), wild oats (*Avena spp.*) and barley (*Hordeum spp.*). Perennial native grasses such as needlegrass (*Stipa spp.*) may occur in smaller quantities. Occasional patches of shrubs are present, including poison oak (*Toxicodendron diversilobum*), California coffeeberry (*Frangula californica*), and California buckeye (*Aesculus californica*). These shrub stands are usually associated with rock outcrops. Blue oak woodlands are usually found in dry, hilly terrain with shallow, rocky, infertile, well-drained soils. Blue oak woodlands are protected under Section 21083.4 of the Public Resources Code (Oak Woodlands Conservation).

Within the planning area, the dominant tree species of the blue oak woodlands are blue oak. As shown in Figure IV.C-2, patches of blue oak woodlands are primarily found within the city's western portion, extending from the northwestern corner to Saratoga Creek.

(2) Coastal Oak Woodland

Coastal oak woodlands are extremely variable. The overstory consists of deciduous and evergreen hardwoods (mostly oaks 15 to 70 feet tall) sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory is equally variable. In some instances, it is composed of shrubs from adjacent chaparral or coastal scrub which forms a dense, almost impenetrable understory. Where trees form a closed canopy, the understory varies from a lush cover of shade-tolerant shrubs, ferns, and herbs to a sparse cover with a thick carpet of litter. When trees are scattered and form an open woodland, the understory is grassland, sometimes with scattered shrubs. The interrelationships of slope, soil, precipitation, moisture availability, and air temperature cause variations in structure of coastal oak woodlands. Coast live oak (*Quercus agrifolia*) woodlands are protected under Section 21083.4 of the Public Resources Code (Oak Woodlands Conservation) because of the habitat value they provide for wildlife species. In addition, coastal oak woodlands dominated by California bay (*Umbellularia californica*) are considered a sensitive plant community by the CDFW.

Within the planning area, the dominant tree species of the coastal oak woodlands are coast live oak and California bay. As shown in Figure IV.C-2, large patches of coast oak woodlands are found along the western portion, with the largest concentration located along the city's southern boundary.

(3) Montane Hardwood-Conifer

Montane hardwood-conifer habitats are mosaic habitats, with at least one-third of the canopy cover consisting of conifers and one-third consisting of broad-leaved trees. This pattern often occurs as small pure stands of conifers mixed with small stands of broad-leaved trees. The common structure of this habitat is an upper canopy formed by conifers up to 200 feet tall with a lower canopy comprised of broad-leaved trees 30-100 feet tall. Due to the dense canopy layer, the understory layer can be relatively sparse. However, a dense shrub layer can form after the shading canopy is disrupted or destroyed by fire or logging. This habitat generally occurs in mountainous terrain with narrow valleys with coarse, well drained mesic soils. Due to its nature as a transitional habitat type between dense coniferous forest and more open woodlands, a wide variety of tree species are present in this habitat. In the central coast, common canopy species include coast live oak, Douglas fir (*Pseudotsuga menziesii*), big-leaf maple (*Acer macrophyllum*), Pacific madrone (*Arbutus menziesii*), tan oak (*Notholithocarpus densiflorus*), canyon live oak (*Quercus chrysolepis*), Coulter pine (*Pinus coulteri*), coast redwood (*Sequoia sempervirens*), California black oak (*Quercus kelloggii*), and Ponderosa pine (*Pinus ponderosa*). The montane hardwood-conifer habitat is particularly valuable to cavity-nesting bird species and certain species of amphibians which inhabit the thick detritus layer.

Within the planning area, the dominant tree species of the montane hardwood-conifer habitat are Douglas fir, coast live oak, tan oak, and coast redwood. As shown on Figure IV.C-2, montane hardwood-conifer habitat is primarily found in large patches within the city's southwestern corner.

(4) Redwood Forest

The appearance of this habitat is determined by the growth stage of the redwood trees that define it. Second growth redwood habitats are made up of a dense canopy of younger trees up to 32 feet tall over an open, parklike understory. As the stands mature, they become even in height and suppress understory vegetation. Virgin old growth forms of this habitat are comprised of large (230-400 feet) trees with a very dense shrub understory 10-13 feet tall. While coast redwoods are the most conspicuous tree species within this habitat, a variety of other tree species can be present at varying densities. Coastal oak woodlands are also commonly associated with the redwood habitat, and annual/perennial grasslands are also often intermixed in the form of isolated glades and prairies. In the Central Coast ecoregion, redwood forests are dominant along the coast and are often found in association with Douglas fir, tan oak, and Pacific madrone. Other tree species present in smaller densities include Bishop pine (*Pinus muricata*), Monterey pine (*Pinus radiata*), sugar pine (*Pinus lambertiana*), Jeffrey pine (*Pinus jeffreyi*), California bay, Oregon ash (*Fraxinus latifolia*), and big-leaf maple. These habitats are highly influenced by coastal fog and marine air, and thus are restricted to coastal regions. This habitat is considered to be a sensitive plant community by the CDFW. Understory vegetation is highly variable and

includes species such as Western sword fern (*Polystichum munitum*), deer fern (*Blechnum spicant*), chain fern (*Woodwardia fimbriata*), red clintonia (*Clintonia andrewsiana*), salal (*Gautheria shallon*), California huckleberry (*Vaccinium ovatum*), oceanspray (*Holodiscus discolor*), thimbleberry (*Rubus parviflorus*), blueblossom (*Ceanothus thrysiflorus*), coyote brush, poison oak, Idaho fescue (*Festuca idahoensis*), and Western fescue (*Festuca occidentalis*).

Within the planning area, the dominant tree species of the redwood forest are coast redwood and Douglas fir. As shown in Figure IV.C-2, redwood forest is found in patches within the city's southwestern corner.

(5) Valley Oak Woodland

Valley oak woodlands are dominated by valley oaks (*Quercus lobata*), which make up the vast majority of the canopy cover. This habitat varies in composition from savannah-like, with a low density of trees to forest-like, with a partial shrub layer. Usually, less dense woodlands are found in dry uplands and denser stands are found in lowlands, especially along natural drainages. In the Coast Ranges, tree associates include coast live oak and foothill pine. The shrub layer (where it is present) normally consists of bird-dispersed species such as poison oak, blue elderberry (*Sambucus nigra ssp. caerulea*), toyon, California coffeeberry, and California blackberry. The herbaceous layer is dominated by grasses such as wild oats, brome, barley, ryegrass (*Festuca spp.*) and needlegrass. The best developed stands of valley oak woodland are found in deep, well-drained soils in valley bottoms where propagation and recruitment occur following flooding and fires. Due to anthropogenic (human-caused) alterations in flood and fire regimes, recruitment of new valley oaks is limited, and most stands consist entirely of large mature trees. As a result, this habitat is considered sensitive by the CDFW. Valley oak woodlands are also protected under Section 21083.4 of the Public Resources Code (Oak Woodlands Conservation).

Within the planning area, the dominant tree species of the valley oak woodland is valley oak. As shown in Figure IV.C-2, valley oak woodlands are found along many creeks (Prospect, Calabazas, Rodeo, Saratoga, Wildcat, Vasona, Sobey, and San Tomas Aquino), and along the tributaries to these creeks.

(6) Valley Foothill Riparian

Valley foothill riparian habitats are composed primarily of deciduous trees associated with low-velocity flows, flood plains, and gentle topography. Within the planning area, the dominant tree species of the valley foothill riparian habitat are cottonwood (*Populus spp.*), California sycamore (*Platanus racemosa*), and valley oak. The subcanopy layer is comprised of hydrophytic trees such as alder (*Alnus spp.*), willows (*Salix spp.*), and boxelder (*Acer negundo*). Generally, the understory layer is formed by a very dense association of shrubs such as poison oak, California blackberry, and blue elderberry. Trees and shrubs are often found to be festooned by lianas, such as

California wild grape (*Vitis californica*), which can provide over 30 percent of the ground cover. This habitat is limited to riparian areas, with an abrupt transition to other non-riparian habitats at the boundary.

As shown in Figure IV.C-2, valley foothill riparian habitat is found along the creeks within the planning area (Calabazas, Saratoga, Wildcat, Vasona, Sobey, and San Tomas Aquino), and along the tributaries to these creeks.

(7) Chamise-Redshank Chaparral

In the Central Coast ecoregion, this habitat is dominated by chamise shrubs 3-6 feet in height, with chamise often exceeding 80 percent of the total shrub cover. In the Coast Ranges, ceanothus is the most frequent associate. Other shrubs can be present in lower quantities, including poison oak, toyon, and manzanita species. Generally, this habitat consists of an impenetrable shrub layer without an established herbaceous layer, due to thin soils with little accumulation of biological material. Fire regimes are important to this habitat, with older unburned stands exhibiting lower species diversity than burned stands.

In this area, the dominant species within the chamise-redshank chaparral habitat is chamise (*Adenostoma fasciculatum*). As shown in Figure IV.C-2, chamise-redshank chaparral is found in patches dispersed within the western portion.

(8) Coastal Scrub

This habitat is highly variable, with several sub-definitions depending on the habitat location and dominant species. Two of these sub-habitats are found within the planning area: Northern coastal scrub (dominated by coyote brush), and southern sage scrub (dominated by California sagebrush). Northern coastal scrub is dominated by dense stands of coyote brush, with shrubs reaching up to 7 feet tall. Common associates in this habitat include blueblossom ceanothus, coffeeberry, bush monkeyflower, California blackberry, and poison oak. Southern sage scrub is recognized by the dominance of California sagebrush, with black sage and California buckwheat (*Eriogonum fasciculatum*) also being common. These sagebrush-dominated habitats generally possess a bare zone approximately 3 feet wide around the periphery of shrubs which extends into surrounding grasslands. As shown in Figure IV.C-2, coastal scrub is found in small patches dispersed throughout the western portion.

(9) Annual Grassland

Annual grassland habitats are dominated by annual non-native grasses and herbs. Structure of these grasslands differs greatly depending on annual grazing and precipitation patterns. Seeds germinate after fall rains, growing slowly until spring when the warm weather stimulates rapid

growth. These plants die off by summer, resulting in large quantities of dead plant material. The dominant grasses in these habitats are introduced annual species, including wild oats, ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), and barley. A wide variety of non-native herbs are found among the grasses, including filaree (*Erodium spp.*), clovers (*Trifolium spp.*), and bur clover (*Medicago polymorpha*). Spring grazing can stimulate the growth of native summer-annual species such as tarweed (*Hemizonia spp.*).

These habitats were once dominated by native perennial bunchgrasses, however centuries of unregulated grazing, introduction of non-native European annual grasses, and human disturbance have substantially altered the species composition. Relict stands of native perennial grasses can still be found in less disturbed areas, and vernal pools can also be found in small hardpan soil depressions. While the structure of the grasslands has changed, native grassland-adapted animal species are still prevalent throughout this habitat.

Within the planning area, patches of annual grassland are within the city's western portion, extending from the northwestern corner to Saratoga Creek (see Figure IV.C-2). A small patch of annual grassland is located west of San Tomas Aquino Creek.

(10) Cropland

Cropland habitat consists of agricultural areas where a variety of food crop plants are grown. These crop plants can include rice, corn, grapes, fruit trees, and many others. Most non-tree crops are annual species that are planted in spring and harvested during summer or fall. In many cases, second crops are planted after the first are harvested. While croplands are considered anthropogenic habitats, they can provide value to wildlife due to the abundance of food resources. Within the planning area, cropland is found primarily within the city's western portion, with a few patches located adjacent to Rodeo, Wildcat, Vasona, and Sobey Creeks (see Figure IV.C-2).

(11) Urban

Urban areas are dominated by impervious surfaces (such as concrete, buildings and roads). Vegetative cover consists of a mélange of native, non-native, and ornamental plants. Wildlife species diversity and vegetative cover both decrease towards the center of the urban environment. However, in less developed urban areas some species of wildlife can survive due to the higher density of plants creating an approximate substitute for the natural environment. Urban areas comprise the largest portion of the planning area (approximately 60.6 percent).

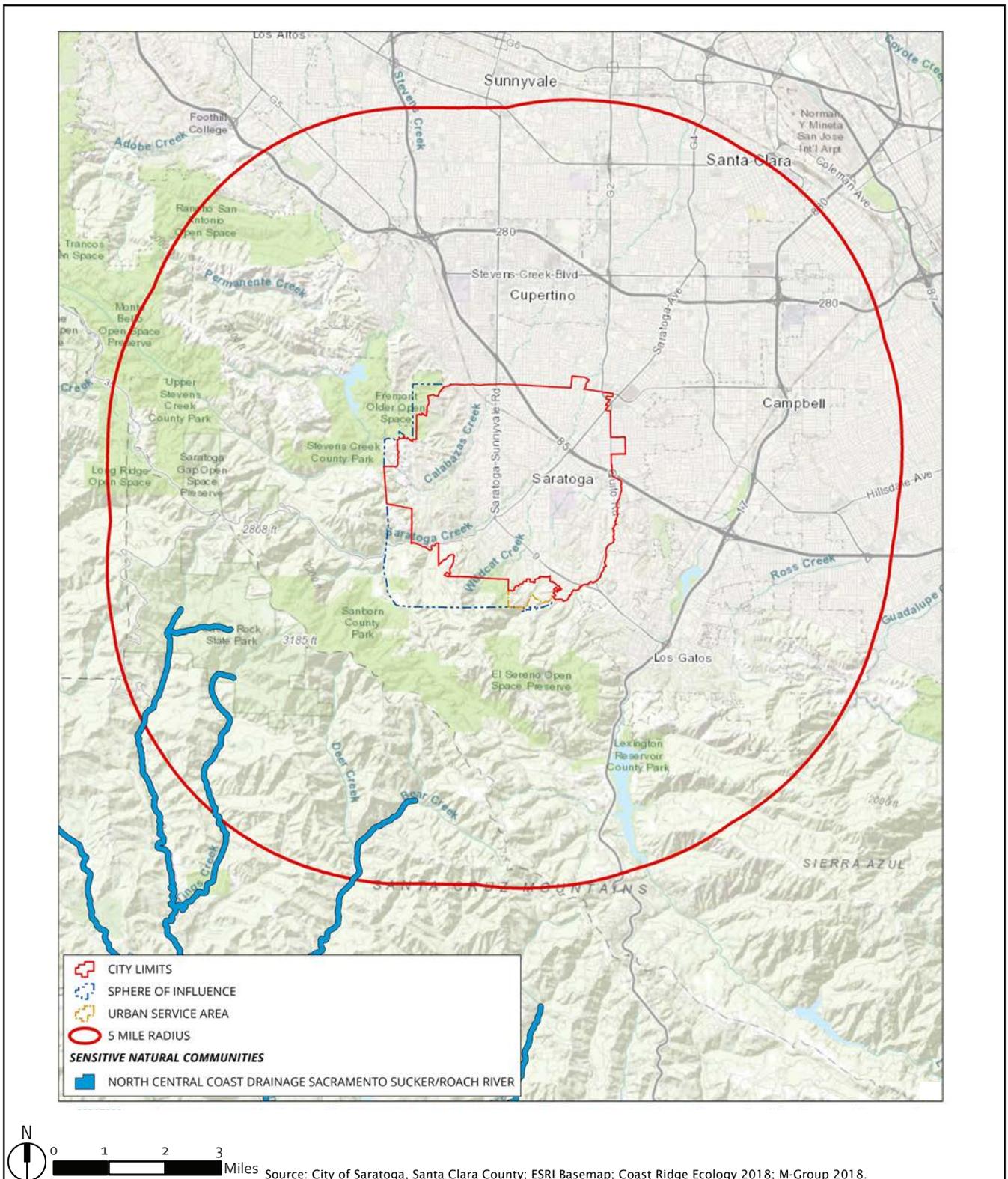


Figure IV.C-3
Sensitive Natural Communities

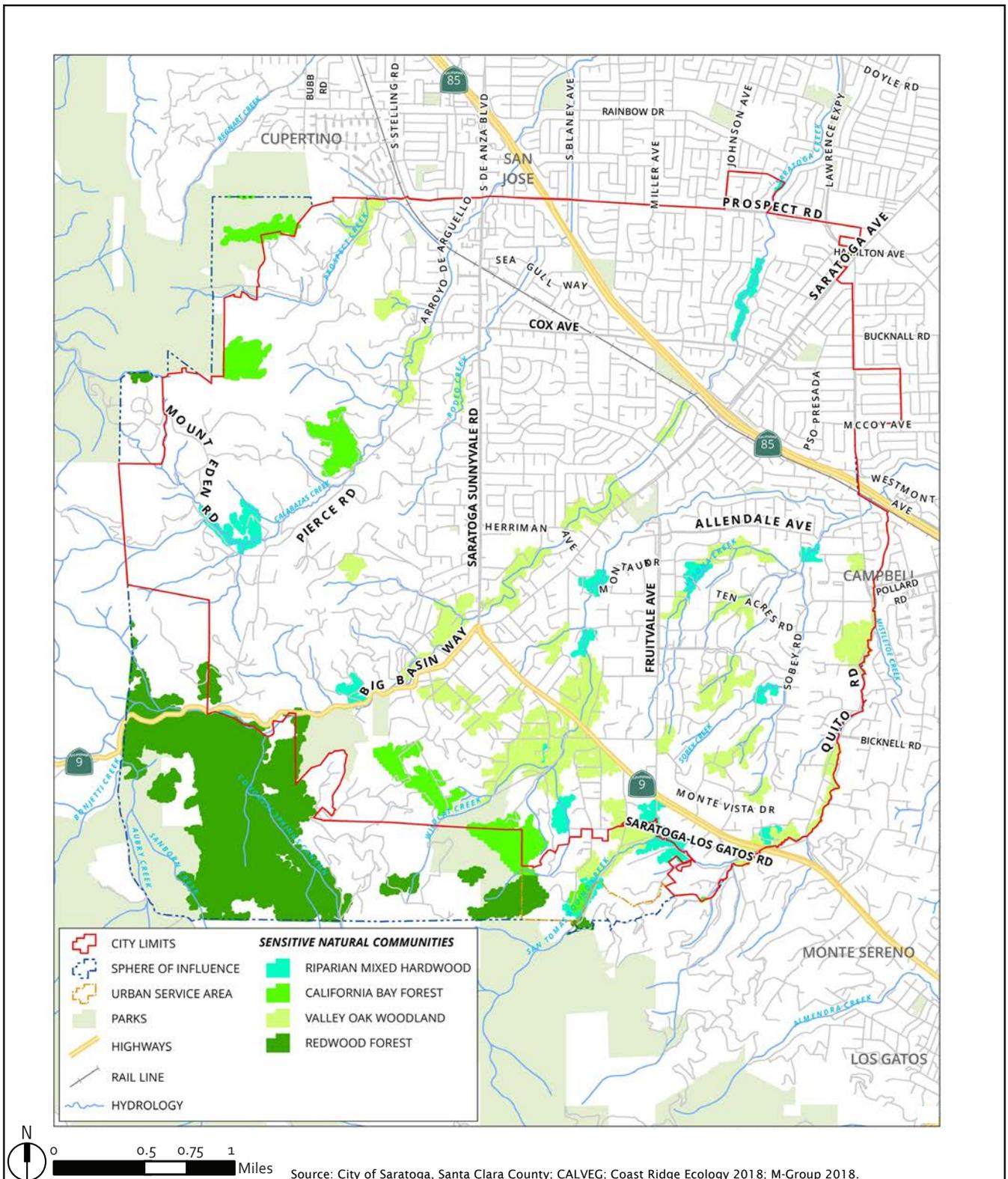


Figure IV.C-4
 Sensitive Plant Communities

c. Special-Status Species

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of relatively limited distribution and generally require specialized habitat conditions. Special-status plants are those that meet the definition of “endangered, rare, or threatened” under CEQA Guidelines Section 15380. For the purposes of this EIR, this includes all plant species that meet any of the following criteria:

- Listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (50 Code of Federal Regulations (50 CFR 17.12 [listed plants] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under the ESA.
- Listed or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plant species with a California Rare Plant Rank (CRPR) status of 1, 2, 3, and 4 as included in the updated rankings in the California Native Plant Society Electronic Inventory of Rare and Endangered Plants of California to be rare, threatened, or endangered in California.

Special-status wildlife are animals that meet the definition of “endangered, rare, or threatened” under CEQA Guidelines Section 15380. For the purposes of this EIR, this includes all animal species that meet any of the following criteria:

- Listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under the ESA.
- Listed or candidates for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5).
- Animal species that are designated as Species of Special Concern or Fully Protected by CDFW.
- Species that are recognized by a conservation or scientific group as being potentially depleted, declining, rare, locally endemic, endangered, or threatened.
- Western Monarch Milkweed Mapper.
- Special-status birds protected by the federal Migratory Bird Treaty Act (16 U.S.C. 703-711).
- Otherwise protected under state or federal law.

The planning area was evaluated by querying the California Natural Diversity Data Base (CNDDDB), the USFWS, and the CNPS for previously recorded occurrences of special-status species. The CDFW maintains records for the distribution and known occurrences of sensitive species and habitats in the CNDDDB, which is organized into map areas based on 7.5-minute topographic maps produced by the U.S. Geological Survey. The CNDDDB is based on actual recorded occurrences but does not constitute an exhaustive inventory of every resource. The absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from that area, but that no data has been entered into the CNDDDB inventory. Detailed field surveys are generally required to provide a conclusive determination on the presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

(1) Special-Status Plant Species

The records search for the project identified a total of 37 special-status plant species that are considered present or potentially present within the planning area. Table IV.C-3 provides a list of the 37 special-status plant species, their habitat, and current protective status. Figure IV.C-5 illustrates the location of each occurrence documented by the CNDDDB within a five mile radius of the planning area. The Listing Status identifies the federal status (e.g., Federal Endangered), State status (e.g., California Endangered Species), and CRPR status. The CRPR status rankings are listed below:

- List 1A – Plants presumed extirpated in California.
- List 1B – Plants rare, threatened, or endangered in California and elsewhere.
- List 3 – Plants about which more information is needed (a review list).
- List 4 – Plants of limited distribution (a watch list).
- x.1 – Seriously threatened in California.
- x.2 – Moderately threatened in California.
- x.3 – Not very threatened in California.

(2) Special-Status Animal Species

The records search for the project identified a total of 42 special-status animal species that are considered present or potentially present within the planning area, including five amphibians, seventeen birds, two fish, seven invertebrates, eight mammals, and three reptiles. Table IV.C-4 provides a list of the 42 special-status animal species, their habitat, and current protective status. Figure IV.C-6 illustrates the location of each occurrence documented by the CNDDDB within a 5-mile radius of the city. The Listing Status identifies the federal status (e.g., Federal Endangered or Threatened) and State status (e.g., California Endangered, Threatened, Fully Protected or Species of Special Concern; or Watch List).

TABLE IV.C-3 SPECIAL-STATUS PLANTS AND LICHENS PRESENT OR POTENTIALLY PRESENT IN SARATOGA PLANNING AREA

Common Name Scientific Name	Listing Status (USFWS/CDFW/CRPR)	General Habitat Requirements
PLANTS		
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	--/--/1B.2	Cismontane woodland, valley and foothill grassland, and coastal bluff scrub. 3-795 m.
Coast rockcress <i>Arabis blepharophylla</i>	--/--/4.3	Rocky sites in broadleaved upland forest, coastal prairie, coastal scrub, and coastal bluff scrub. 3-1100 m.
Anderson's manzanita <i>Arctostaphylos andersonii</i>	--/--/1B.2	Open sites in broadleaved upland forest, chaparral, north coast coniferous forest, and redwood forest. 60-760 m.
Kings Mountain manzanita <i>Arctostaphylos regismontana</i>	--/--/1B.2	Granitic or sandstone outcrops in broadleaved upland forest, chaparral, and north coast coniferous forest. 240-705 m.
Bonny Doon manzanita <i>Arctostaphylos silvicola</i>	--/--/1B.2	Only known from Zayante (inland marine) sands in Santa Cruz County. 150-520 m.
Brewer's calandrinia <i>Calandrinia breweri</i>	--/--/4.2	Sandy or loamy soils in chaparral and coastal scrub. Disturbed sites, burns. 10-1200 m.
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	--/--/1B.1	Valley and foothill grassland, alkaline soils, sometimes described as heavy white clay. 0-230 m.
Ben Lomond spineflower <i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	FE/--/1B.1	Zayante coarse sands in maritime ponderosa pine sandhills. 105-475 m.
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	FE/--/1B.1	Sandy terraces and bluffs or in loose sand within cismontane woodland, coastal dunes, coastal scrub, and chaparral. 9-245 m.
Mt. Hamilton fountain thistle <i>Cirsium fontinale</i> var. <i>campylon</i>	--/--/1B.2	In seasonal and perennial drainages on serpentine in cismontane woodland, chaparral, valley and foothill grassland. 75-890 m.
Brewer's clarkia <i>Clarkia breweri</i>	--/--/4.2	Often found on serpentine in chaparral, cismontane woodland, and coastal scrub. 215-1115 m.
Santa Clara red ribbons <i>Clarkia concinna</i> ssp. <i>automixa</i>	--/--/4.3	On slopes and near drainages in cismontane woodland and chaparral. 90-1500 m.
Lewis' clarkia <i>Clarkia lewisii</i>	--/--/4.3	Coastal scrub, chaparral, cismontane woodland, broadleaf upland forest, and closed-cone coniferous forest. 30-610 m.
San Francisco collinsia <i>Collinsia multicolor</i>	--/--/1B.2	On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. In Closed-cone coniferous forest and coastal scrub. 10-275 m.

IV. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

C. BIOLOGICAL RESOURCES

Common Name Scientific Name	Listing Status (USFWS/CDFW/CRPR)	General Habitat Requirements
Clustered lady's-slipper <i>Cypripedium fasciculatum</i>	--/--/4.2	In serpentine seeps and on moist streambanks within coniferous forest. 100-2435 m.
Western leatherwood <i>Dirca occidentalis</i>	--/--/1B.2	On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 20-640 m.
Santa Clara Valley dudleya <i>Dudleya abramsii</i> ssp. <i>Setchellii</i>	FE/--/1B.1	On rocky serpentine outcrops and on rocks within grassland or woodland. 60-455 m.
Fragrant fritillary <i>Fritillaria liliacea</i>	--/--/1B.2	Often on serpentine; various soils reported though usually on clay, in grassland. 3-400 m.
Phlox-leaf serpentine bedstraw <i>Galium andrewsii</i> ssp. <i>Gatense</i>	--/--/4.2	Dry, rocky places in serpentine soil. Chaparral, cismontane woodland, and lower montane coniferous forest. 150-1450 m.
Loma Prieta hoita <i>Hoita strobilina</i>	--/--/1B.1	Serpentine endemic. Mesic sites in chaparral, cismontane woodland, and riparian woodland. 60-975 m.
Coast iris <i>Iris longipetala</i>	--/--/4.2	Mesic sites, heavy soils. Found in coastal prairie, lower montane coniferous forest, meadows and seeps. 0-600 m.
Serpentine leptosiphon <i>Leptosiphon ambiguous</i>	--/--/4.2	Grassy areas on serpentine soil in cismontane woodland, coastal scrub, valley and foothill grassland (margin with chaparral). 120-1130 m.
Woolly-headed lessingia <i>Lessingia hololeuca</i>	--/--/3	Clay, serpentine; roadsides, fields. Found in coastal scrub, lower montane coniferous forest, valley and foothill grassland, and broadleaf upland forest. 15-305 m.
Smooth lessingia <i>Lessingia micradenia</i> var. <i>glabrata</i>	--/--/1B.2	Serpentine; often on roadsides. Chaparral, cismontane woodland, valley and foothill grassland. 90-490 m.
Arcuate bush-mallow <i>Malacothamnus arcuatus</i>	--/--/1B.2	Gravelly alluvium in chaparral and cismontane woodland. 1-735 m.
Hall's bush-mallow <i>Malacothamnus hallii</i>	--/--/1B.2	Chaparral and coastal scrub. Some populations on serpentine. 10-735 m.
Woodland woollythreads <i>Monolopia gracilens</i>	--/--/1B.2	Grassy sites with sandy to rocky soils within chaparral, grasslands, and woodlands. Often seen on serpentine soils after the area has burned but may have only weak affinity to serpentine. 120-975 m.
White-rayed pentachaeta <i>Pentachaeta bellidiflora</i>	FE/CE/1B.1	Open dry rocky slopes and grassy areas in cismontane woodlands and grasslands. Often on soils derived from serpentine bedrock. 35-610 m.

Common Name Scientific Name	Listing Status (USFWS/CDFW/CRPR)	General Habitat Requirements
White-flowered rein orchid <i>Piperia candida</i>	--/--/1B.2	North Coast coniferous forest, lower montane coniferous forest, and broadleaf upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m.
Hickman's popcornflower <i>Plagiobothrys chorisianus var. hickmanii</i>	--/--/4.2	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps and vernal pools. 15-185 m.
Hairless popcornflower <i>Plagiobothrys glaber</i>	--/--/1A	Coastal salt marshes and alkaline meadows. 5-125 m.
Metcalf Canyon jewelflower <i>Streptanthus albidus ssp. albidus</i>	FE/--/1B.1	Relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds. 50-275 m.
Most beautiful jewelflower <i>Streptanthus albidus ssp. Peramoenus</i>	--/--/1B.2	Serpentine outcrops on ridges and slopes in chaparral, valley and foothill grassland, and cismontane woodland. 90-1040 m.
Santa Cruz clover <i>Trifolium buckwestiorum</i>	--/--/1B.1	Moist grassland. Gravelly margins of Coastal prairie, broadleaf upland forest, and cismontane woodland. 30-805 m.
Saline clover <i>Trifolium hydrophilum</i>	--/--/1B.2	Marshes and swamps, valley and foothill grassland and vernal pools. Mesic, alkaline sites. 1-335 m.
Caper-fruit tropidocarpum <i>Tropidocarpum capparideum</i>	--/--/1B.1	Alkaline clay in valley and foothill grassland. 0-360 m.
LICHENS		
Methuselah's beard lichen <i>Usnea longissimi</i>	--/--/4.2	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.

ABBREVIATIONS:

FE – Federal Endangered

CE – California Endangered Species

CRPR Rankings:

List 1A – Plants presumed extirpated in California.

List 1B – Plants rare, threatened, or endangered in California and elsewhere.

List 3 – Plants about which more information is needed (a review list).

List 4 – Plants of limited distribution (a watch list).

x.1 – Seriously threatened in California.

x.2 – Moderately threatened in California.

x.3 – Not very threatened in California.

Source: CDFW CNDDDB, 2022; CNPS Inventory of Rare and Endangered Plants of California, 2022.

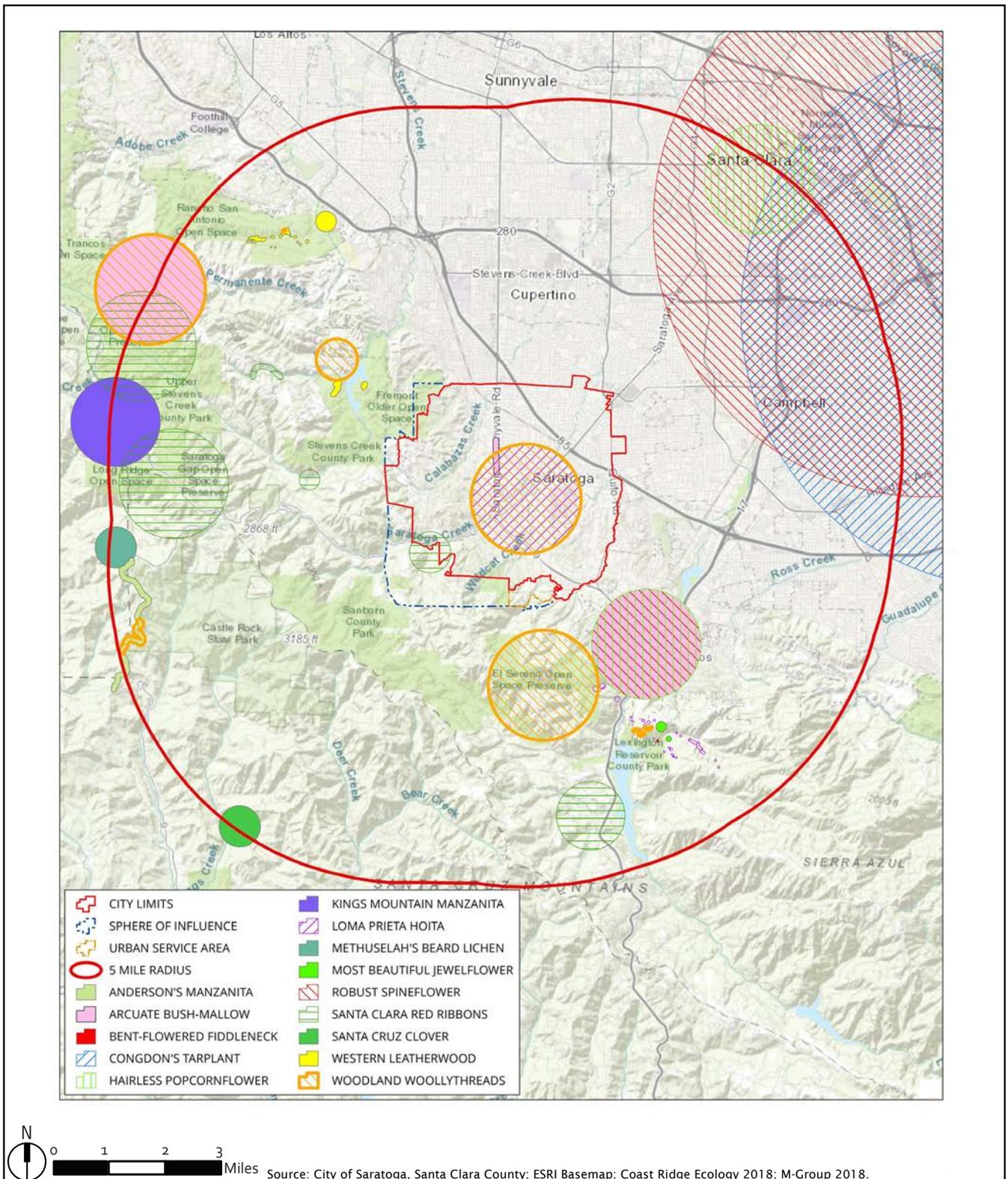


Figure IV.C-5
Special Status Plant Species

TABLE IV.C-4 SPECIAL-STATUS ANIMALS PRESENT OR POTENTIALLY PRESENT IN PLANNING AREA

Common Name Scientific Name	Listing Status (USFWS/CDFW)	General Habitat Requirements
AMPHIBIANS		
California tiger salamander <i>Ambystoma californiense</i>	FT/CT	Grasslands. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.
Santa Cruz black salamander <i>Aneides niger</i>	--/CSC	Mixed deciduous and coniferous woodlands, coastal grasslands. Adults found under rocks, talus, and damp woody debris.
California giant salamander <i>Dicamptodon ensatus</i>	--/CSC	Wet coastal forests near streams and seeps. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.
California red-legged frog <i>Rana draytonii</i>	FT/CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to upland estivation habitat such as mammal burrows.
Red-bellied newt <i>Taricha rivularis</i>	--/CSC	Coastal drainages in forests and woodlands. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.
BIRDS		
Cooper's hawk <i>Accipiter cooperii</i>	--/WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, and live oaks in canyon bottoms on river floodplains.
Tricolored blackbird <i>Agelaius tricolor</i>	--/CT, CSC	Breeds in large colonies near freshwater, preferably emergent wetland such as cattails and tules but also in thickets of willow and other shrubs. Requires nearby foraging areas with large numbers of insects.
Grasshopper sparrow <i>Ammodramus savannarum</i>	--/CSC	Grasslands with coyote brush and other shrubs.
Golden eagle <i>Aquila chrysaetos</i>	--/CFP	Forages in rolling foothill or coast-range terrain, with open grassland and scattered large trees. Nests in large trees, on cliffs, and occasionally on power line poles.
Long-eared owl <i>Asio otus</i>	--/CSC	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.
Burrowing owl <i>Athene cunicularia</i>	--/CSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.

IV. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

C. BIOLOGICAL RESOURCES

Common Name Scientific Name	Listing Status (USFWS/CDFW)	General Habitat Requirements
		Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.
Swainson's hawk <i>Buteo swainsoni</i>	--/CT	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.
Vaux's swift <i>Chaetura vauxi</i>	--/CSC	Grasslands and agricultural fields; nests in dense vegetation in large hollow trees near open water; forages in most habitats but prefers rivers and lakes.
Northern harrier <i>Circus hudsonius</i>	--/CSC	Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes.
Olive-sided flycatcher <i>Contopus cooperi</i>	--/CSC	Coniferous forests with open canopies.
Yellow rail <i>Coturnicops noveboracensis</i>	--/CSC	Freshwater marshlands
Yellow warbler <i>Dendroica petechia</i>	--/CSC	Nests in extensive willow riparian woodlands. Often occurs in region as a Spring or Fall migrant.
White-tailed kite <i>Elanus leucurus</i>	--/CFP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.
American peregrine falcon <i>Falco peregrinus anatum</i>	--/CFP	Found near wetlands, lakes, rivers, or other water. Nests on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.
Yellow-breasted chat <i>Icteria virens</i>	--/CSC	Nests in extensive willow riparian woodlands with dense understory.
Purple martin <i>Progne subis</i>	--/CSC	Occurs in woodlands; nests in tree snags and abandoned woodpecker cavities and human-made structures.
California least tern <i>Sternula antillarum browni</i>	FE/CE	Coastal and in the San Francisco Bay. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.
FISH		
Coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	FE/CE	Streams and rivers. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.
Steelhead - central California coast DPS <i>Oncorhynchus mykiss</i>	FT/--	Streams and rivers with cool, swift, shallow water, clean loose gravel for spawning, and suitably large pools in which to spend the summer.

Common Name Scientific Name	Listing Status (USFWS/CDFW)	General Habitat Requirements
INVERTEBRATES		
Obscure bumble bee <i>Bombus caliginosus</i>	--/--	Open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Food plant genera include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindelia</i> , and <i>Phacelia</i> .
Crotch bumble bee <i>Bombus crotchii</i>	--/CC	Open grassland and scrub habitats. Nesting occurs underground. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .
Western bumble bee <i>Bombus occidentalis</i>	--/CC	Open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Generalist forager on many plant species. Nests in underground cavities such as old rodent nests and in open west-southwest slopes bordered by trees.
Isopod <i>Calasellus californicus</i>	--/--	Freshwater wells and springs.
Monarch butterfly <i>Danaus plexippus</i>	FC/--	Winter roosts along the coast from northern Mendocino to Baja California, Mexico in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. Host plant is milkweed (<i>Asclepias</i> spp.)
Unsilvered fritillary <i>Speyeria adiaeste</i>	--/--	Limited to the higher elevations of the Santa Cruz Mountains. Inhabits openings in conifer and redwood forests, as well as oak woodlands, chaparral, and grassy slopes. Host plants are violets (<i>Viola</i> spp.).
Zayante band-winged grasshopper <i>Trimerotropis infantilis</i>	FE/--	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sandhills ecosystem). Mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass.
REPTILES		
Northern California legless lizard <i>Anniella pulchra</i>	--/CSC	Sandy or loose loamy soils under sparse vegetation in chaparral, coastal scrub, and coastal dunes. Soil moisture is essential. Prefer soils with a high moisture content.
Western pond turtle <i>Emys marmorata</i>	--/CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 foot elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometers from water for egg-laying.
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	FE/CE	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at

Common Name Scientific Name	Listing Status (USFWS/CDFW)	General Habitat Requirements
		least one foot. Upland areas near water are also very important.
MAMMALS		
Pallid bat <i>Antrozous pallidus</i>	--/CSC	Found in a wide variety of habitats at low elevations. Most commonly found in open, dry habitats with rocky areas for roosting.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--/CSC	Found in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings in cavernous areas such as caves and barns.
Santa Cruz kangaroo rat <i>Dipodomys venustus</i>	--/--	Silverleaf manzanita mixed chaparral in the Zayante Sandhills ecosystem of the Santa Cruz Mountains. Needs soft, well-drained sand.
Western red bat <i>Lasiurus blossevillii</i>	--/CSC	Often roosts and forages on or near riparian habitat. Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Does not breed in the project area.
Hoary bat <i>Lasiurus cinereus</i>	--/--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.
Yuma myotis <i>Myotis yumanensis</i>	--/--	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	--/CSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves and other material. May be limited by availability of nest-building materials.
American badger <i>Taxidea taxus</i>	--/CSC	Grassland, scrub, and woodland with loose-textured soils.

ABBREVIATIONS:

FE – Federal Endangered

FT – Federal Threatened

FC – Federal Candidate

CFP – California Fully Protected

WL – Watch List

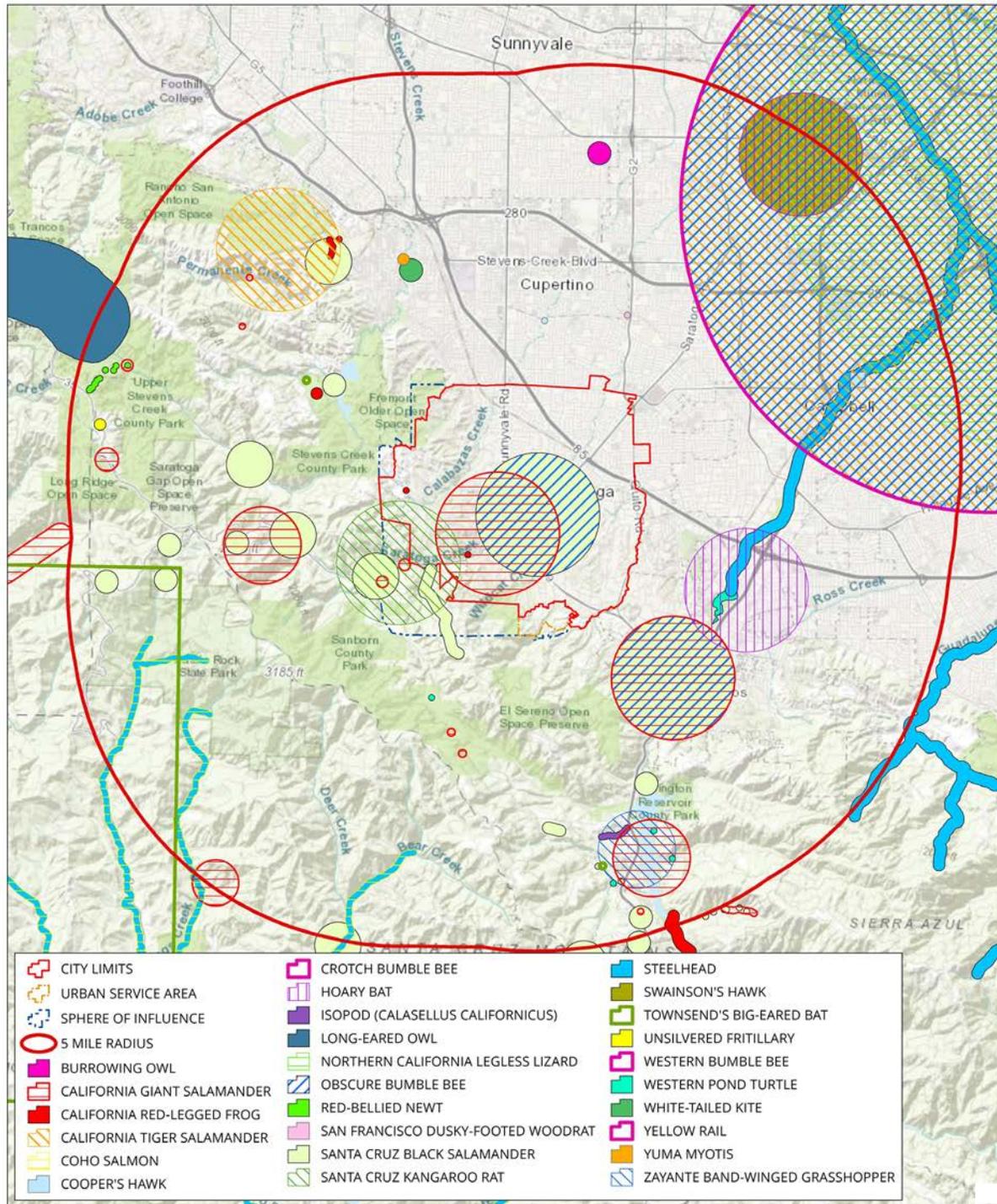
Source: CDFW CNDDDB, 2022; LSA 2022.

CE – California Endangered Species

CT – California Threatened

CC – California Candidate

CSC – California Species of Special Concern (CDFW)



Source: City of Saratoga, Santa Clara County; ESRI Basemap; Coast Ridge Ecology 2018; M-Group 2018.

Figure IV.C-6
Special Status Animal Species

d. Wildlife Corridors

Wildlife corridors are connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as between foraging and denning areas, or they may be regional in nature, allowing movement across the landscape. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, preserve a species' distribution potential, and retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource. The waterways (including Prospect, Calabazas, Rodeo, Saratoga, Wildcat, Vasona, Sobey, San Tomas Aquino, Aubry, and Sanborn Creeks), as well as the open space (consisting of the hillsides and mountains in the southern and western areas of the city and sphere of influence (SOI)), serve as aquatic and terrestrial wildlife migration corridors in the city.

e. Heritage and Protected Trees

The City of Saratoga has numerous trees, including "heritage" and "protected" trees, both of which are regulated according to Article 15-50 (Tree Regulations) of the Saratoga Municipal Code (see *Regulatory Framework*, below). The Municipal Code strives to provide a stable and sustainable urban forest to preserve and protect significant historic heritage values, and to enhance the unique aesthetic character and environment of the city.

2. Regulatory Setting

a. Federal

(1) Endangered Species Act

The FESA, passed in 1973, defines an endangered species as any species or subspecies that is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Once a species is listed, it is fully protected from a "take" unless a take permit is issued by the USFWS. A take is defined as the harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct, including modification of its habitat (16 USC 1532, 50 CFR 17.3). Proposed endangered or threatened species are those species for which a proposed regulation, but not a final rule, has been published in the Federal Register.

(2) Clean Water Act – Section 404

Section 404 of the Clean Water Act regulates all discharges of dredged or fill material into waters of the United States. Discharges of fill material include the placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. Section 323.2(f)].

Waters of the United States include lakes, rivers, streams, intermittent drainages, mudflats, sandflats, wetlands, sloughs, and wet meadows [33 CFR Section 328.3(a)]. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 CFR Section 328.3(b)]. Waters of the United States exhibit a defined bed and bank and ordinary highwater mark (OHWM). The OHWM is defined by the U.S. Army Corps of Engineers (USACE) as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 CFR Section 328.3(e)].

Discharge of fill material into waters of the United States, including wetlands, is regulated by the USACE under Section 404 of the Clean Water Act (33 USC 1251–1376). Executive Order 11990 is a federal implementation policy, which is intended to result in no net loss of wetlands.

(3) Clean Water Act – Section 401

Section 401 of the Clean Water Act (33 USC 1341) requires an applicant who is seeking a 404 permit to first obtain a water quality certification from the Regional Water Quality Control Board (RWQCB). To issue a water quality certification, the RWQCB must indicate that the proposed fill (hydrologic channel modification) with the applicable project conditions will not violate the water quality standards established by the State for the waterbody. The San Francisco RWQCB is responsible for enforcing water quality criteria and protecting water resources in Saratoga.

(4) Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Most of the birds found in the City of Saratoga are protected under the MBTA.

(5) Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Section 668) protects these birds from direct take and prohibits the take or commerce of any part of these species. The USFWS administers the act, and reviews federal agency actions that may affect these species.

b. State

(1) California Endangered Species Act (Fish and Game Code Sections 2050-2097)

The CESA protects certain plant and animal species when they are of special ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the State. CESA established that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats.

CESA was expanded upon the original Native Plant Protection Act and enhanced legal protection for plants. To be consistent with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Under State law, plant and animal species may be formally designated by official listing by the California Fish and Game Commission.

(2) California Native Plant Protection Act (Fish and Game Code Sections 1900-1913)

In 1977 the State Legislature passed the Native Plant Protection Act (NPPA) in recognition of rare and endangered plants of the State. The intent of the law was to preserve, protect, and enhance endangered plants. The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants. The NPPA includes provisions that prohibit the taking of plants designated as "rare" from the wild, and a salvage mandate for landowners, which requires notification of the CDFW 10 days in advance of approving a building site.

(3) Predatory Birds (Fish and Game Code Sections 3503, 3503.5, 3800)

Under the California Fish and Game Code, all predatory birds in the order Falconiformes or Strigiformes in California, generally called "raptors," are protected. The law indicates that it is unlawful to take, possess, or destroy the nest or eggs of any such bird unless it is in accordance with the code. Any activity that would cause a nest to be abandoned or cause a reduction or loss in a reproductive effort is considered a take. This generally includes construction activities.

(4) Streambed Alteration (Fish and Game Code Sections 1601-1603)

Under the California Fish and Game Code, CDFW has jurisdiction over any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. Private landowners or project proponents must obtain a "Streambed Alteration Agreement" from CDFW prior to any alteration of a lake bed, stream channel, or their banks. Through this agreement, the CDFW may impose conditions to limit and fully mitigate impacts on fish and wildlife resources. These agreements are usually initiated through the local CDFW warden and will specify timing and construction conditions, including any mitigation necessary to protect fish and wildlife from impacts of the work.

(5) California Environmental Quality Act (Public Resources Code Section 21000)

CEQA provides that a species that is not listed on the federal or state endangered species list may be considered rare or endangered if the species meets certain criteria. Under CEQA, public agencies must determine if a project would adversely affect a species that is not protected by FESA or CESA. Species that are not listed under FESA or CESA, but are otherwise eligible for listing (i.e., candidate or proposed) may be protected by the local government until the opportunity to list the species arises for the responsible agency. Species that may be considered for review are included on a list of "Species of Special Concern," developed by the CDFW. Additionally, the CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction.

(6) Oak Woodland Conservation Act

The Oak Woodland Conservation Act was enacted by Chapter 588, Statutes of 2001, as a result of widespread changes in land use patterns across the landscape that were fragmenting oak woodland character over extensive areas. The Act created the California Oak Woodland Conservation Program within the Wildlife Conservation Board. The legislation provides funding and incentives to ensure the future viability of California's oak woodland resources by maintaining large-scale land holdings or smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units. The Act acknowledged that the conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the State.

(7) Oak Woodlands Conservation (Public Resources Code Section 21083.4)

In 2004, the California legislature enacted Senate Bill 1334, which added oak woodland conservation regulations to the Public Resources Code. This new law requires a County to determine whether a project, within its jurisdiction, may result in a conversion of oak woodlands that will have a significant effect on the environment. If a County determines that there may be a significant effect to oak woodlands, the County must require oak woodland mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. Such mitigation alternatives include: conservation through the use of conservation easements; planting and maintaining an appropriate number of replacement trees; contribution of funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements; and/or other mitigation measures developed by the County. These requirements apply within the planning area.

c. Regional

(1) Santa Clara Valley Habitat Plan

The Final Santa Clara Valley Habitat Plan, adopted in August 2012, provides a framework for promoting the protection and recovery of natural resources, including endangered species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities.¹ The “Local Partners” or “Permittees” of the Plan include: County of Santa Clara, Santa Clara Valley Water District, Santa Clara Valley Transportation Authority, and the cities of San Jose, Morgan Hill, and Gilroy. The City of Saratoga is adjacent to, but not within, the Habitat Plan Study Area and Permit Area.

d. Local

(1) Saratoga General Plan

The proposed Saratoga General Plan includes the following policies and implementation measures (IM) that assist in protecting biological resources:

¹ Final Santa Clara Valley Habitat Plan, adopted August 2012. Available at: <http://scv-habitatagency.org/178/Santa-Clara-Valley-Habitat-Plan>, accessed May 14, 2018.

Land Use Element

Environmental and Resource Protection

Goal LU 6: Protect natural resources and amenities through appropriate land use and related programs.

Policy LU 6.1: Incorporate specific standards and requirements into the Zoning Ordinance to preserve and protect sensitive watershed areas on hillsides within the community.

Policy LU 6.2: Development proposals shall incorporate stormwater quality features, including but not limited to grassy bio-swales, to protect surface and subsurface water quality.

Policy LU 6.4: The General Plan shall continue to enforce and implement existing tree protection policies, especially in regards to native trees.

IM LU-6.c.: Continue to require arborist review for all development projects in accordance with the City's Tree Ordinance.

Hillside Development

Goal LU 8: The natural beauty of the West Valley hillsides area shall be maintained and protected for its contribution to the overall quality of life of current and future generations.

Policy LU-8.1: Development proposals shall minimize impacts to ridgelines, significant natural hillside features, including but not limited to steep topography, major stands of vegetation, especially native vegetation and oak trees, and watercourses.

Policy LU8.2: Adhere to the Hillside Specific Plan (derived from Measure A), which is incorporated herein by this reference.

IM-LU.8.a.: Continue to utilize the design review process for all development in the western hillsides and ensure adherence to the City's Hillside Specific Plan.

Open Space and Conservation Element

Goal OSC 7: Preserve and protect existing view sheds, view corridors, and scenic open spaces.

Policy OSC 7.1: Future land use proposals within the western hillside area shall be reviewed by the City through the development review and environmental review processes to ensure that improvements blend in with the natural environment. Criteria shall include but not be limited to the use of unobtrusive colors, controlled grading, limited disruption of natural vegetation,

use of structural height limits, and structural design and density guidelines. Special consideration should be given to the eventual development of a canopy effect of tree growth.

IM OSC-7.a. Continue to use the design review and environmental review process to ensure that development proposals in the hillsides are compatible with the natural environment.

Policy OSC-10.1: Retain surface watercourses in their natural condition to the greatest extent possible through sound land use planning, community design, and site planning.

Policy OSC-10.2: Concentrate development in those portions of the community least susceptible to soil erosion and minimize grading and the introduction of impervious surfaces. Where appropriate, consider the use of on-site to minimize stormwater runoff from sites.

IM OSC-10.a. Coordinate review of development projects adjacent to watercourses with the Santa Clara Valley Water District and other applicable agencies.

IM OSC-10.b: Ensure erosion control measures are required with each development project as part of the development approval process. Project applicants shall demonstrate that project implementation will not result in increases in the peak flow runoff to adjacent lands or drainage facilities.

Biological Resources

Goal OSC 11: Protect and enhance sensitive vegetative and wildlife habitat in the Saratoga planning area.

Policy OSC 11.1: Minimize development that would encroach into important wildlife habitats, limit or restrict normal range areas, or restrict access to water food or shelter. This includes limitations on the installation of barrier fencing in hillside areas.

Policy OSC 11.2: Through the development and CEQA process, preserve, protect, and maintain riparian habitats and creek corridors. This includes requiring biological surveys of parcels of land that could contain sensitive species or their habitats prior to allowing development on these parcels.

Policy OSC 11.4: The City should provide information and assistance to the public in the preservation and care of native trees whose existence can be threatened by environmental stress and development.

Policy OSC 11.5: Mature vegetation shall be preserved wherever possible.

IM OSC.11.a. The City shall continue to utilize the design review and environmental review process for all development applications to ensure that projects are designed in a manner that minimizes disruption to important wildlife, riparian and plant habitats.

IM OSC.11.b. The City shall continue to require that all projects conform to the City's Tree Ordinance.

Arbor Resources

Goal OSC 12: Support appropriate management for sustaining the health and increasing the extent of arbor resources in the City. The specific vision is to increase overall tree cover, tree health and consequent tree benefits in an equitable, cost beneficial and sustainable manner.

Policy OSC 12.1: Development projects should include the preservation of protected trees and other significant trees. Any adverse affect on the health and longevity of native oak trees, protected or other significant trees should be avoided through appropriate design measures and construction practices. When tree preservation is not feasible, individual development projects shall include appropriate tree replacement as approved by the City.

Policy OSC 12.2: Trees used for new or replacement plantings should be selected primarily for low water use characteristics.

Policy OSC 12.3: To further protect and enhance the City's arbor resources built on the City's Tree Regulations, the City should continue its support of tree protection programs.

Policy OSC 12.4: It is the City's policy that forested lands in the City's Sphere of Influence shall be managed to maximize environmental protection and to discourage logging to the maximum extent possible, consistent with proper fire protection standards and practices.

Heritage Trees

Goal OSC 13: The preservation of native and other plant species indicative of Saratoga's cultural heritage shall be given priority over development and provide for the perpetuation of such species.

Policy OSC 13.1: To further preserve the City's inventory of arbor resources, the City should encourage owners to consider formal designation of heritage trees.

Policy OSC 13.2: The City shall encourage public knowledge, understanding and appreciation of the City's past and foster civic and neighborhood pride and sense of identity based upon the recognition and use of the City's heritage resources, particularly as it relates to the

designation and preservation of heritage trees. This can be done by publicizing information about heritage trees and the benefits of designation of heritage trees on the City's Website.

IM OSC.13.a. Continue to utilize the design review process, Historic Preservation Ordinance and Tree Ordinance to ensure preservation of significant arbor resources.

(2) Saratoga Municipal Code

The Saratoga Municipal Code includes the following policies that assist in protecting biological resources:

Zoning Districts

Articles 15-11, 15-12, 15-13, 15-17, 15-18, and 15-20 of the Saratoga Municipal Code contain site coverage requirements that also provide opportunities to avoid sensitive habitat areas and species. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) includes numerous provisions to protect environmentally sensitive areas within the R-OS district. The R-OS district is located in the western portion of the planning area, which is home to a number of sensitive habitats and species discussed above are located in the R-OS district.

Tree Regulations

Article 15-50 of the Saratoga Municipal Code (Tree Regulations) protects native trees with a diameter at breast height (DBH) of 6 inches or more and non-natives with a DBH of 10 inches together with street trees and trees that have been found to have a historical or cultural significance. The Code safeguards these trees against removal, damage, pruning, or encroachment upon, without first having obtained a tree removal, pruning, or encroachment permit from the City.

Design Review: Single-Family Dwelling

Article 15-45.045 of the City of Saratoga's Municipal Code regulates creek protection setbacks as they pertain to the development of single-family residential uses throughout the city. These regulations require building setbacks for any new construction along or adjacent to a protected creek as defined by the City's Code to be measured from the top of the creek bank(s) on the site rather than from the property lines of the site. The required setback shall be the minimum setback prescribed for the applicable zoning district to provide for the future protection of creeks, and riparian habitat in the city.

Design Review: Multi-Family Dwelling

Article 15-45.046 of the City of Saratoga's Municipal Code regulates creek protection setbacks as they pertain to the development of multi-family residential uses throughout the city. These regulations require building setbacks for any new construction along or adjacent to a protected creek as defined by the City's Code to be measured from the top of the creek bank(s) on the site rather than from the property lines of the site.

3. Impacts and Mitigation Measures

Impacts to biological resources resulting from implementation of the project are discussed below. The project proposes updated policies and implementation measures related to biological resources including General Plan Policy XYZ which requires a biological resource assessment for proposed development on sites with natural habitat conditions that may support special-status species, sensitive natural communities, or regulated wetlands and waters. Updating the policies and implementation measures of the General Plan would not result in any biological resource-related impacts. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the cumulative impacts associated with the project.

a. Thresholds of Significance

According to the CEQA Guidelines Appendix G, the project will have a significant impact related to biological resources if it would:

- Have a substantial adverse effect, either directly or indirectly through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

b. Analysis and Findings

The following discussion describes the potential impacts associated with biological resources that would result from the project. The impact analysis is based on queries of the CNDDDB, the USFWS list of special-status species, and the CNPS Lists 1A, 1B, and 4, which identify existing biological resources within the Saratoga planning area. Impacts to biological resources are assessed using the significance criteria established by the CEQA guidelines. This analysis identifies the potential direct and indirect impacts to biological resources from construction, operation, and maintenance activities related to future development that could occur under the project.

(1) Sensitive or Special Status Species (Criterion 1)

Local, regional, State, and federal regulations provide varying levels of protection for special-status species, depending on several factors, including legal protective status, rarity and distribution, the magnitude of the potential impact on essential habitat, specific occurrence and overall population levels, and take of individual plants or animals. Activities requiring discretionary approvals by local, regional, State, and federal agencies provide for the greatest oversight because each potential future development that could occur from implementation of the project must be evaluated for their potential impact on special-status species and other sensitive biological resources. This includes further review of parcels identified for residential use in the Housing Sites Inventory, where warranted.

As discussed in the *Setting* section, 37 special-status plant species and 42 special-status animal species have the potential to occur within the planning area including five amphibians, seventeen birds, two fish, seven invertebrates, eight mammals, and three reptiles as documented within Figure IV.C-6 and/or Table IV.C-4. Per Figure IV.C-6 and Table IV.C-4, several special-status species are documented within areas of the planning area proposed for housing sites. Subsequent development under the project could result in the direct or indirect loss or disturbance of special-status plant or animal species or their habitats that are known to occur or have potential to occur, in the planning area.

Significant impacts on special-status plant species associated with individual subsequent projects could include the direct loss of individual plants and of habitat areas associated with these special-status plant species. Indirect impacts to special-status plant species could include habitat degradation as a result of impacts to water quantity and quality.

While future residential development proposed by the project may produce impacts on special-status species, these plant and animal species receive protection from various federal, State, and

local laws and regulations which seek to minimize and mitigate impacts to such species. These regulations generally prohibit the taking of protected plant and animal species, or direct impacts to foraging or breeding habitat, without a special permit.

The General Plan includes policies and implementation measures specifically designed to mitigate impacts on sensitive habitats and species. Policies OSC11.1 and OSC-11.2 direct the City to minimize encroachments into wildlife habitats and require biological surveys of parcels of land that could contain sensitive species or their habitats prior to allowing development on these parcels. Policy OSC-11.5 requires that mature vegetation be preserved wherever possible. These requirements are implemented on a case-by-case basis as development applications are submitted since each site is different and each development proposal is unique.

The most common zoning district implementing the RHC designation is the Residential-Open Space (R-OS) zoning district. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) contains criteria to guide development away from environmentally sensitive areas, such as riparian corridors and other wildlife habitats.

The location and nature of residential development considered under the project would continue to be guided by the Saratoga General Plan and Municipal Code. Future housing projects would continue to be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to protect sensitive biological resources. Residential development under the project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts on special-status species would be less than significant.

(2) Riparian Habitat or Other Sensitive Natural Community (Criterion 2) and Regulated Waters (Criterion 3)

Residential development associated with the project could result in direct or indirect impacts on sensitive natural communities if these resources are not adequately identified and protected. Direct impacts occur as a result of converting natural habitats into development, including constructing new structures, creating impervious surfaces for roadways and parking, and culverting of natural drainages. Sensitive natural communities in the planning area include coastal oak woodlands, valley oak woodlands, redwood forests, riparian woodlands, stream channels, wetlands, and possibly native grasslands. Most of the parcels in the Housing Sites Inventory have been disturbed by past grading and development and the potential for sensitive natural communities is generally very remote. However, there remains a potential for presence of sensitive natural communities on some parcels in the Housing Sites Inventory, and in other locations where future residential development could occur where natural habitat remains in the planning area.

As discussed in the *Setting* section and depicted in Figure IV.C-3, one sensitive natural community was identified within 5 miles of the City of Saratoga, the North Central Coast Drainage Sacramento Sucker/Roach River community. This sensitive natural community is located approximately 3 miles from the planning area, and thus, would not be impacted by implementation of the project.

Sensitive plant communities within the Saratoga planning area include coastal oak woodland (California bay dominant); redwood forest; valley oak woodland; and valley foothill riparian (see Figure IV.C-4 for their locations). Implementation of the project could result in direct or indirect effects on these sensitive plant communities.

While typically not documented as a sensitive natural community in the CNDDDB, streams, rivers, and wet meadows are of high concern because they provide unique aquatic habitat for many endemic species, including special-status plants, birds, invertebrates, and amphibians. These aquatic habitats oftentimes qualify as protected wetlands or jurisdictional waters and are protected from disturbance through the Clean Water Act.

Subsequent development under the project, primarily adjacent to creeks (San Tomas Aquino, Saratoga, Calabazas, Wildcat, Vasona, Sobey, Sanborn, Aubry, Prospect, and Rodeo Creeks) and their tributaries, could result in direct or indirect effects on riparian habitat and other sensitive natural communities. Federally protected wetlands and other Waters of the United States and/or State could be affected through direct removal, filling, hydrological interruption (including dewatering), alteration of a stream bed and bank, and other construction-related activities.

Riparian habitats and sensitive natural communities receive protection under the California Fish and Game Code (Sections 1601-1603). Any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream, must obtain a "Streambed Alteration Agreement" from CDFW prior to any alteration of a lakebed, stream channel, or their banks. Through this agreement, the CDFW may impose conditions to limit and fully mitigate impacts on fish and wildlife resources.

Some of the housing sites (Figure III-5) are situated near sensitive habitats, such as Site 32, which is near Coastal Oak Woodlands and Redwood Forests. Development of these sites would be reviewed consistent with the City's applicable ordinances and policies to mitigate any impacts to less-than-significant levels.

Section 404 of the Clean Water Act requires any project that involves disturbance to a wetland or waters of the United States to obtain a permit that authorizes the disturbance. If a wetland or jurisdictional water is determined to be present, then a permit must be obtained from the USACE to authorize a disturbance to the wetland. Although subsequent projects may disturb protected wetlands and/or jurisdictional waters, the regulatory process that is established through Section

404 of the Clean Water Act ensures that there is “no net loss” of wetlands or jurisdictional waters. If, through the design process, it is determined that a future development project cannot avoid a wetland or jurisdictional water, then the USACE would require that there be an equal amount of wetland created elsewhere to mitigate any loss of wetland.

Section 401 of the Clean Water Act (33 USC 1341) requires an applicant who is seeking a 404 permit to first obtain a water quality certification from the RWQCB. To issue a water quality certification, the RWQCB must find that the proposed fill into a waterbody is consistent with the standards set forth by the State.

The General Plan includes policies and implementation measures designed to address riparian habitat and other sensitive natural communities, as well as protect wetlands and Waters of the United States and/or State. Policy OSC-11.2 protects sensitive natural communities by requiring biological surveys of parcels of land that could contain sensitive species or their habitats prior to allowing development on these parcels. Policy LU-6.2 requires new development to incorporate stormwater quality features, such as grassy bio-swales, to protect surface and subsurface water quality. Policy OSC-10.1 requires that surface watercourses be retained in their natural condition to the greatest extent feasible. Implementation Measure OSC-10.a requires the City to coordinate review of development projects adjacent to watercourses with the Santa Clara Valley Water District and other applicable agencies. By protecting water quality, the aforementioned policies preserve aquatic habitat and riparian vegetation that serves as habitat.

The Saratoga Municipal Code contains rules and regulations to protect environmentally sensitive areas. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) calls for the avoidance of development on or near environmentally sensitive areas, such as those with watersheds, riparian corridors, and wildlife habitats, within the R-OS Zoning District.

Future residential development under the project would comply with adopted state, federal, and local regulations for the protection of sensitive natural communities, including riparian habitat, wetlands, and Waters of the United States and/or State. In addition, future projects would comply with requirements of the Saratoga Municipal Code, and the General Plan policies and implementation measures related to the protection of these biological resources.

While the project does not directly propose any adverse changes to riparian areas, wetlands, or other sensitive habitats, future development under the project could result in indirect adverse impacts to riparian areas, wetlands, or other sensitive habitat.

Impact BIO-1: Construction of development under the project to adversely affect riparian areas and other sensitive habitat areas would vary by location. For those identified development sites located near riparian areas, wetlands, or other sensitive habitat, construction activities can result in accidental spills near streams and wetlands that could

lead to potential indirect impacts to water quality which could impact sensitive habitats and special-status species (e.g., California red-legged frog). Artificial light and glare implemented with new development can also impact sensitive bird habitat in riparian areas, potentially influencing nesting behavior. In addition, reflective glass and finishes can result in bird strikes, resulting in bird injury or mortality. (S)

As future developments are considered by the City, each project will be evaluated for conformance with the City's General Plan, Municipal Code, and applicable state and federal regulations, as discussed above. Implementation of these policies and the following mitigation measures would ensure that adverse effects on riparian areas, wetlands, and other sensitive habitat areas are reduced to a less-than-significant level.

Mitigation Measure BIO-1: Reducing Potential Glare and Impacts to Riparian Areas and Birds.
The following mitigation measures shall be included as standard conditions of approval:

BIO-1a: Prior to issuance of Building Permits for development projects on parcels immediately adjacent to riparian areas or sensitive woodland areas, the applicant shall submit for staff approval, a Lighting Plan for the project's exterior and landscaped areas. Proposed exterior lighting shall be limited to full cut off and shielded fixtures with downward direction illumination so as not to shine on adjacent properties, undeveloped areas, or public right-of-way and all light fixtures must be certified by the International Dark Sky Association.

BIO-1b: New development projects shall use exterior building materials designed to reduce light and glare impacts. The use of bright colors, and glossy, reflective, see-through or glare-producing building and material finishes is discouraged on buildings and structures. No more than 25 percent of the building's exterior may use bright colors and/or glossy, reflective, see-through, or glare-producing materials. The following types of exterior lighting are prohibited: mercury vapor luminaires, searchlights, sky beams, upward-directed fixtures, and aerial lasers. (LTS)

(3) Movement of Fish and Wildlife Species (Criterion 4)

Residential development under the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

As described in the *Setting* section, the waterways (including Calabazas, Saratoga, San Tomas Aquino Creeks and their tributaries), as well as the open space (consisting of the hillsides and mountains in the southern and western areas of the city and SOI), serve as aquatic and terrestrial wildlife migration corridors within the planning area. Species using these areas include aquatic, terrestrial, and avian species.

Many of the policies already presented in this section have ancillary benefits of protecting movement habitat for wildlife. For instance, Policy OSC-11.2 requires biological surveys of parcels of land that could contain sensitive species or their habitats to preserve, protect, and maintain riparian habitats and creek corridors. Policy OSC-11.5 requires that mature vegetation be preserved wherever possible.

Policy OSC-11.1 specifically addresses movement habitat for wildlife. Policy OSC-11.1 requires that development be minimized in areas that would encroach into important wildlife habitats, limit or restrict normal range areas, or restrict access to water food or shelter. This policy also includes limitations on the installation of barrier fencing in hillside areas. In addition, General Plan policy OSC-10.2 and implementation measure IM OSC-10a addresses erosion control, which also protects water quality and aquatic habitat areas.

The Saratoga Municipal Code contains rules and regulations to protect environmentally sensitive areas. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) contains criteria to guide development away from environmentally sensitive areas, such as those with watersheds, riparian corridors, and wildlife habitats. More specifically, Section 050 of Article 15-20 establishes criterion and development standards with which all proposed development is required to comply, including provisions for the location of building sites [15-20.050(g)] and grading [15-20.050(h)].

Future residential development under the project would comply with adopted State, federal, and local regulations for the protection of biological resources. In addition, future projects would comply with requirements of the Saratoga Municipal Code, and the General Plan policies and implementation measures related to biological resources. Therefore, future residential development under the project would not result in significant adverse effects to wildlife corridors or native wildlife nursery sites, and any program-level impacts would be considered less than significant under this criterion.

(4) City of Saratoga Policies (Criterion 5)

Residential development facilitated by the project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Implementation of the project would be subject to all applicable local policies and regulations related to the protection of important biological resources. Specifically, development under the project would be required to comply with Article 15-50 of the Saratoga Municipal Code (Tree Regulations), which is intended to provide a stable and sustainable urban forest to preserve and protect significant historic heritage values, and to enhance the unique aesthetic character and environment of the city. As described in the ordinance, the city has numerous trees, including “heritage” and “protected” trees, both of which are safeguarded against removal, damage,

pruning, or encroachment upon, without first having obtained a tree removal, pruning, or encroachment permit from the City.

The General Plan contains policies and implementation measures that help protect the city's trees in compliance with the City's Tree Ordinance. Policy LU-6.4 requires the General Plan to continue to enforce and implement existing tree protection policies, especially regarding native trees. Implementation Measure LU-6.c. requires an arborist review for all development projects in accordance with the City's Tree Ordinance. Policy OSC-12.1 requires that development projects include the preservation of protected trees and other significant trees; when tree preservation is not feasible, individual development projects shall include appropriate tree replacement as approved by the City of Saratoga. Therefore, the project would comply with applicable local regulations and impacts would be less than significant.

(5) Habitat Conservation Plan or Natural Community Conservation Plan (Criterion 6)

Residential development facilitated by the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

As discussed in the *Regulatory Setting* section, the Santa Clara Valley Habitat Plan was adopted in August 2012. The "Local Partners" or "Permittees" of the Plan include: County of Santa Clara, Santa Clara Valley Water District, Santa Clara Valley Transportation Authority, and the cities of San Jose, Morgan Hill, and Gilroy. The City of Saratoga is adjacent to, but not within, the Habitat Plan Study Area and Permit Area. There are no other local, regional, or state habitat conservation plans that are applicable to the proposed project.

Therefore, implementation of the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. The project would have a less than significant impact relative to this topic.

c. Cumulative Biological Resource Impacts

The geographic context for analysis of cumulative impacts to biological resources includes land within the City of Saratoga and its SOI. This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development, would result in a cumulatively significant impact on special-status species; wetlands and other waters of the United States and/or State; or other biological resources protected by federal, State, or local regulations or policies. This analysis then considers whether the incremental contribution of the impacts

associated with the implementation of the project would be significant. Both conditions must apply for a project's cumulative effects to rise to the level of significance.

Cumulative development contributes to an incremental reduction in the amount of existing wildlife habitat, particularly for birds and larger mammals. Habitat for species intolerant of human disturbance can be lost as development encroaches into previously undeveloped areas, disrupting or eliminating movement corridors and fragmenting the remaining suitable habitat retained within parks, private open space, or undeveloped properties. New development in the region would result in further conversion of existing natural habitats to urban and suburban conditions, limiting the existing habitat values of the surrounding area. This could include further loss of wetlands and sensitive natural communities, reduction in essential habitat for special-status species, removal of mature native trees and other important wildlife habitat features, and obstruction of important wildlife movement corridors. Additional development may also contribute to degradation of the aquatic habitat in the creeks throughout the region.

The City of Saratoga is part of a larger urbanized area around San Francisco Bay. The city is located adjacent to the Santa Cruz Mountains at the edge of urbanized area. In the future, most new urban development and redevelopment is expected to occur in the existing urbanized areas north and east of Saratoga. The most common sensitive habitats in these urbanized areas include isolated pockets of residual oak woodland and riparian habitats located along perennial water sources. The lack of undeveloped land limits the amount of area containing sensitive habitats/species and reduces the potential for additional impacts in these areas. Projects outside of the City of Saratoga that could have cumulative impacts on biological resources include the El Paseo/1777 Saratoga Avenue Mixed-Use Project (El Paseo) and the Westgate West Costco Warehouse Project, both of which are in San Jose. Construction activities associated with the El Paseo project would likely result in a substantial adverse effect on candidate, sensitive, or special status species. However, the project proposes mitigation that, when implemented, would reduce cumulative impacts to a less than significant level. Similarly, impacts on riparian habitats and other sensitive natural communities associated with the Saratoga Housing and Safety Elements, and 2040 General Plan Updates would be reduced to a less than significant level with implementation of Mitigation Measures BIO-1 and BIO-2.

Areas west and south of the city are less developed hillside areas designated for very low-density and rural land uses. This area also contains large areas of preserved open space operated by a variety of public agencies. Adjacent unincorporated areas, and area within the city's planning area, the major County General Plan land use designation is Hillside. According to the County General Plan, the Hillside designation is intended to allow primarily for agriculture and grazing, mineral extraction, parks and wildlife refuges, and rural-density residential uses. Because this area is relatively undeveloped, it contains the majority of the sensitive biologic resources. Much of this area is currently occupied by permanent open space. In the non-open space areas, the

County General Plan allows only limited development, often on larger lot sizes, which is less likely to have significant impacts on biologic resources.

As described in the *Regulatory Setting* section, numerous laws and regulations are in place to protect biological resources, including, but not limited to, the California Endangered Species Act, FESA, and the Clean Water Act. The Final Santa Clara Valley Habitat Plan aids in protecting and enhancing ecological diversity and function throughout most of Santa Clara County. Development under the project, and other future projects within the cumulative geographic context, would be required to comply with federal, State, and local laws and policies and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources.

In addition, the implementation of Mitigation Measures BIO-1 and BIO-2 would ensure that any indirect impacts would be reduced to less than significant levels.

The project would not result in a considerable incremental contribution to cumulative impacts because the city is largely built out, the General Plan contains policies to protect sensitive vegetative and wildlife habitats and creek corridors, and future residential development under the project would be required to comply with regulations set forth by State and federal agencies to protect biological resources, and proposed mitigations would minimize indirect impacts. As a result, cumulative impacts would be less than significant.

D. CULTURAL AND TRIBAL CULTURAL RESOURCES

This section examines the project's potential to impact cultural resources within the city of Saratoga. Cultural resources refer broadly to prehistoric and historic buildings, structures, objects, sites, and districts exhibiting important historical, cultural, scientific, or technological associations and that exhibit historic integrity.¹ This definition extends to Tribal Cultural Resources which refer to sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. For the purposes of CEQA, cultural resources are divided into four subcategories: archaeological resources, historic resources, Native American tribal cultural resources and remains, and paleontological resources.

More specifically, cultural resources and historic resources are often considered together under the term cultural resources, which are formally recognized by a lead agency as historical resources and/or are listed or determined eligible for listing on the California Register of Historical Resources (CRHR) (Pub. Res. Code, Section 5024.1, Title 14 CCR, Section 4852). It is notable that, the fact that a resource is not yet identified as a historical resource or found eligible for the CRHR does not preclude a lead agency from determining that said resource is a historical resource pursuant to Public Resources Code Sections 5020.1(j) or 5024.1. Under CEQA, a substantial adverse change in the significance of a historical resource would constitute a significant effect on the environment. The effects on paleontological resources are addressed in *Section IV.E, Geology and Soils*.

1. Setting

a. Methods

(1) California Historic Resources Information System

A search of the California Historic Resources Inventory System (CHRIS) was requested from the Northwest Information Center (NWIC) located at Sonoma State University on May 26, 2022, which included the entire City of Saratoga. Results of the record search indicate that 173 previous studies have been completed within the city (Appendix C-1, Table C-1.1).

The NWIC results list 24 cultural resources that have been recorded within the city (Table IV.D-1; Appendix C-2, Table C-2.1). An additional seven properties not within the NWIC results are listed

¹ Historic integrity refers to the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's prehistoric or historic period. Historic integrity is the composite of seven qualities: location, design, setting, materials, workmanship, feeling, association.

in the NRHP. These resources are the Warner Hutton House (N2317), Paul Masson Mountain

Winery (N1191), Miller-Melone Ranch (N1822), Saratoga Foothill Club (N2280), Saratoga Village Library (N2356), Villa Montalvo (N598), and Welch-Hurst (N668).

These resources are described below in Table IV.D-2 and mapped in Figure IV.D-1.

TABLE IV.D-1 SUMMARY OF CULTURAL RESOURCES BY TYPE

Resource Type	No. of Resources
Historic Built Environment	17
Prehistoric Archaeological Site	4
Historic Archaeological Site	2
Multi-Component Site	1
Total	24

Source: Appendix C-2.

TABLE IV.D-2 SUMMARY OF CULTURAL RESOURCES WITHIN THE CITY OF SARATOGA

Primary #	Description of Resource
P-43-0082 (CA-SCL-0065)	Recorded by L. King in 1973. The site is described as a very old village or living site with light to medium colored midden at the surface that gets darker with increasing depth. No shell or bone was visible on the surface when recorded by the Santa Clara Valley Archaeological Society and West Valley College. The latter holds the large collection of artifacts from the site which consist of manos, metates, mortars, pestles, and charmstones. ^a
P-43-0084 (CA-SCL-0067)	Site P-43-0084 (CA-SCL-0067) was recorded in 1973 by C. Anderson. The site is described as being an at least 1000- by 500-foot midden site with a Monterrey chert flake scatter with some clam and mussel shell. Artifacts from the site also include obsidian projectile points, lithic cores and the property owner had a collection of mortars he removed from the site. ^b
P-43-0231 (CA-SCL-0221/H)	Site P-43-0231 (CA-SCL-221/H) was recorded in 1976 by Robert Cartier of De Anza College. Known as both the Farr Ranch and the Painless Parker Homestead, this site is approximately 100 acres in size with a 5-acre principal area that contain three stables. The site contained bottles, dishware, machine parts, and other farm and household related artifacts. A partially fossilized human femur was also found indicating a possible Paleoindian presence at the site. ^c
P-43-0373 (CA-SCL-0367)	Site P-43-0373 (CA-SCL-367) was recorded in 1979 by S. Kerr of Cabrillo College based on information from a Parnas Corporation Environmental Impact Report. The resource is described as a single sandstone boulder mortar that is approximately 45 by 30 centimeters deep. Kerr speculated that the boulder may have been brought to its current location by historic residents. ^d
P-43-000374 (CA-SCL-0368/H)	Site P-43-000374 was originally recorded by S. Kerr in 1979 as the cultural remains of Congress Hall Hotel – Pacific Congress Springs mineral spa. The property included a leveled terrace bordered by locust, eucalyptus and palm trees, a possible spring box, a stone wall, and a 7-foot-high alcove. ^e The site was revisited by Janet Pape, Benjamin Harris, Maureen Zogg and Christopher Caputo in 2009. A total of 12 features were documented on the property including a stone outbuilding, two stone retaining walls, a concrete arched structure, a historic road, concrete staircase, concrete privy, a rough-cut stone wall, a vacant building site, a historic pathway or track, a bottling plant site, and a structure near a natural spring used for drawing water. ^f

TABLE IV.D-2 SUMMARY OF CULTURAL RESOURCES WITHIN THE CITY OF SARATOGA

Primary #	Description of Resource
P-43-000405 (CA-SCL-000399/H)	Site P-43-000405 was originally nominated to the NRHP in 1977 by Chester A. Root, the Past President of the Santa Clara Valley Chapter, American Institute of Architects and Jole Crall, New Dimension Committee for the Montalvo Association. Known as the Villa Montalvo, the property was entrusted to the general public to be used as a cultural center. Having been commissioned by a major political and cultural figure in California history, Villa Montalvo is a prominent example of a California style interpretation of a classic Mediterranean country estate. ^g Using information included in the NRHP nomination records, the site record was then completed by J. Cooper in 1979 as a 177-acre Italian style villa built “about 60 years ago,” currently being used as a Center for the Arts. ^h
P-43-000428 (CA-SCL-000425/H)	Site P-43-000428 was recorded by R. Cartier in 1980 as a prehistoric midden deposit with [fire-cracked rock] and small amounts of chipped lithics. Specific artifacts include four flakes of green and red Franciscan chert and a bowl mortar reported by a long-term resident in the area. ⁱ
P-43-001458	Site P-43-001458 was recorded by Kara Oosterhous in 2002 as the “Peck House.” The property is described as a two-story home of redwood frame construction, atop a concrete perimeter foundation. The home was constructed in 1931 by contractor Lawrence Case and designed by Linda Peck, in a Colonial Revival architectural style. ^j
P-43-001467	Site P-43-001467 was recorded by L. Dill and A. Halberstadt in 2003 as the “Fair Oaks” or “Caswell House.” The original house was built circa 1906 with additions and alterations occurring in the 1940s or 1950s. Features of the property include a garage, shed, secondary residence, pool, stable, and pond. Built using a Classic Revival architectural style with Prairie style influences, the site is recommended eligible for the CRHR under Criterion 3. Further study indicates that it may be considered eligible for the NRHP under Criterion C for its architectural significance. ^k
P-43-001479	Site P-43-001479 was recorded by L. Dill and A. Halberstadt in 2003 as the “Parsons House.” The property is described as three residences on two adjoining parcels, consisting of a main house with two cottages. Other features include two detached garages. The main house was built circa 1906 with the cottage additions in the 1950s or 1960s, using a Shingle Style architectural style. The house appears eligible for the CRHR under Criterion 3 for its architectural significance, however structural modifications make the property ineligible for the NRHP under Criterion C. ^k
P-43-001500	Site P-43-001500 was recorded by Leslie Dill in 2003. The property is described as a one-story, wood framed building using a Mediterranean Style architectural design. The house was constructed in 1924 with a recent addition circa 1981-1982. The site appears eligible for the CRHR under Criterion 3 for its architectural significance, however it is ineligible for the NRHP under Criteria A and B. ^l
P-43-001798	Site P-43-001798 was recorded by L. Dill, C. Duval, and B. Montgomery in 2004 as two one-story residential homes on two adjacent lots. Features include a barn outbuilding, garage, and a retaining wall at the nearby creek. The main house appears to have been built pre-1917 using the Vernacular architectural style. The site was determined ineligible for either the CRHR or NRHP. ^m
P-43-002350	Site P-43-002350 was recorded by Grant Stauffer Lyddon in 2009 as the “Seven Springs Ranch.” The property consists of a main house built in 1938, using a Spanish Colonial Revival architectural design. Other features include a secondary two-bedroom guest

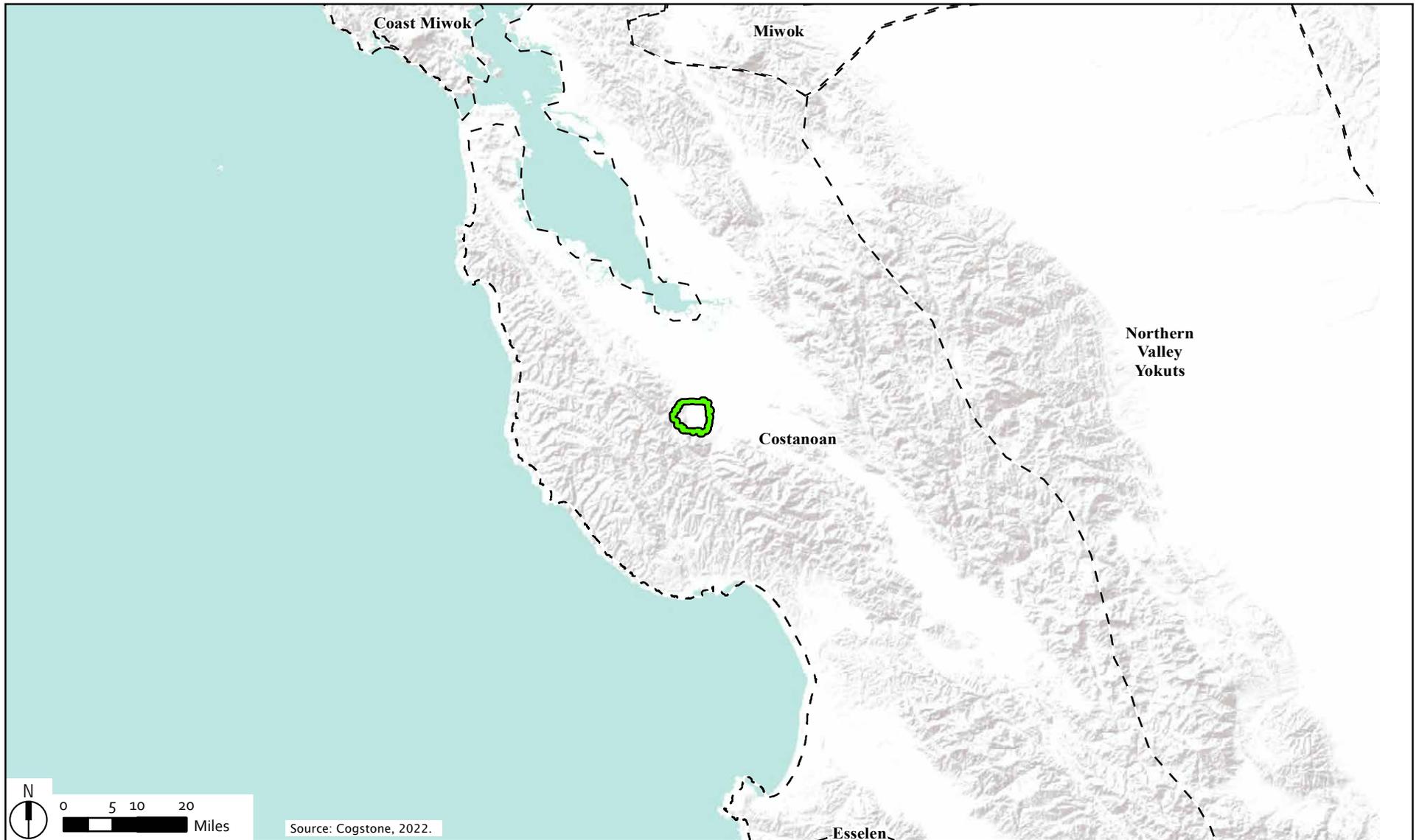
TABLE IV.D-2 SUMMARY OF CULTURAL RESOURCES WITHIN THE CITY OF SARATOGA

Primary #	Description of Resource
	house, an adobe guest residence, a four-door carriage house/garage, a large concrete water tower, barn, moat, orchard, pool, koi fish ponds, bridges, and fountains. The property was recommended eligible for the NRHP. ⁿ
P-43-002371	Site P-43-002371 was recorded by K. A. Crawford in 2010. The St. Andrews Episcopal Church was built circa 1958, using a Modern architectural style, with alterations occurring in 1963, 1977 and 1991. Other features include school buildings, an administration building, and a parking lot. The property was found to be ineligible for the NRHP and was not evaluated for the CRHR. ^o
P-43-002394	Site P-43-002394 was recorded by Mary K. Smith in 2009. The Hakone Gardens is a series of gardens and related buildings constructed between 1917 and 1991 in a traditional Japanese design. The property has four main gardens, the Hill and Pond Garden, the Zen Garden, the Tea Garden, and the Bamboo Garden. The four main structures include the Upper House, the Lower House, the Tea Waiting Pavilion, and the Main Gate or <i>Mon</i> . Hakone Gardens is eligible for the NRHP under Criteria A and C as a significant example of traditional Japanese landscape and architectural design that was imported into the United States during the late 19 th and early 20 th centuries. ^p
P-43-002803	Site P-43-002803 was recorded by Ward Hill in 2011. The property is a single-family residence with a detached garage, constructed in 1940. The house was evaluated and determined ineligible for both the NRHP and CRHR. ^q
P-43-002807	Site P-43-002807 was recorded by Ward Hill in 2011. The property is a single-family residence with a detached garage, constructed in 1940 using the Spanish Colonial Revival architectural style. The house was evaluated and determined ineligible for both the NRHP and CRHR. ^r
P-43-003021	Site P-43-003021 was originally recorded by Sandy Baily in 1981. The site was revisited and re-recorded by SHPC in 1988. The John Henry House is a one-story cottage constructed in 1869 using the National or Pioneer architectural style. ^s In 2009, the property was revisited and evaluated by F. Maggi, L. Dill, and J. Kusz. The site was recommended as eligible for the CRHR under Criterion 3 for its distinctive characteristics of an early National style cottage. ^t Finally, the site was recorded again by Stacey De Shazo in 2018. After reevaluation, the property was determined to be ineligible for listing in the CRHR. ^u
P-43-003126	Site P-43-003126 was recorded by Dana E. Supernowicz in 2013. The West Valley College Fine Arts/Humanities Building was constructed in 1972 in the Modernist/Brutalist architectural style. The property was evaluated and determined ineligible for the NRHP but was not evaluated for the CRHR. ^v
P-43-003857	Site P-43-003857 was registered as Historical Point of Interest #435 in 1949. The resource is described as a plaque tablet placed by the California Centennials Commission, with the words: "Saratoga (formerly Toll Gate, McCartysville, Bank Mills) Anza exploring party passed through March 25, 1776. Lumbering in mountains which began 1847 and continued many years brought first settlers 1850. Among other industries established were lime quarry 1850's, grist mill 1854, tannery 1863, paper mill 1868, and pasteboard mill 1870. Pacific Congress Springs, popular resort, 1866-1942. Pioneered in fruit industry. Blossom festivals began 1900."

TABLE IV.D-2 SUMMARY OF CULTURAL RESOURCES WITHIN THE CITY OF SARATOGA

Primary #	Description of Resource
	The site has since been re-recorded twice, once in 1959 by Glenn A. Jackson and again in 1979 by Jim Arbuckle. ^w
P-43-003877	Site P-43-003877 was recorded by Kara Oosterhous in 2002. The Frank Mitchell House is a Craftsman Bungalow style single-family residence that was built circa 1909. The interior has been altered through remodeling in the 1960s or 1970s. The property was not evaluated for the NRHP or the CRHR. ^j
P-43-003945	Site P-43-003945 was recorded by K. A. Crawford in 2016. The resource is a Pacific Gas and Electric Transmission Tower built in the 1940s. The tower is built using a steel lattice frame set on concrete base footings. The tower was determined ineligible for listing in both the NRHP and CRHR. ^x
P-43-003946	Site P-43-003946 was recorded by Matthew Hotlkamp in 2017. The site is a religious and educational facility consisting of a sanctuary, fellowship hall, and education building. The Menlo-Saratoga Presbyterian Church was constructed in 1965 using the Modern architectural style. The property was determined ineligible for the NRHP and was unevaluated for listing in the CRHR. ^y

^a King, L., 1973. Site record for P-43-0082 (CA-SCL-0065) on file at the Northwest Information Center.
^b Anderson, C., 1973. Site record for P-43-0084 (CA-SCL-0067) on file at the Northwest Information Center.
^c Kerr, S., 1979a. Site record for P-43-0373 (CA-SCL-0067) on file at the Northwest Information Center.
^d Kerr, S., 1979b. Site record for P-43-0374 (CA-SCL-0368/H) on file at the Northwest Information Center.
^e Kerr, S., 1979c. Site record for P-43-0374 (CA-SCL-0368/H) on file at the Northwest Information Center.
^f Pape, B.H., M. Zogg, and C. Caputo, 2009. Site record for P-43-0231 (CA-SCL-0221/H) on file at the Northwest Information Center.
^g Root, C.A. and J. Crall, 1977. Site record for P-43-000405 (CA-SCL-000399/H) on file at the Northwest Information Center.
^h Cooper, J., 1979. Site record for P-43-000405 (CA-SCL-000399/H) on file at the Northwest Information Center.
ⁱ Cartier, Robert, 1980. Site record for P-43-000428 (CA-SCL-000425/H) on file at the Northwest Information Center.
^j Oosterhouse, K., 2002. Site record for P-43-03877 on file at the Northwest Information Center.
^k Dill, L. and A. Halberstadt, 2003. Site record for P-43-001479 on file at the Northwest Information Center.
^l Dill, L., 2003. Site record for P-43-001500 on file at the Northwest Information Center.
^m Dill, L., C. Duval, and B. Montgomery, 2004. Site record for P-43-001798 on file at the Northwest Information Center.
ⁿ Lyddon, G.S., 2009. Site record for P-43-002350 on file at the Northwest Information Center.
^o Crawford, K.A., 2010. Site record for P-43-002371 on file at the Northwest Information Center.
^p Smith, Mary K., 2009. Site record for P-43-002394 on file at the Northwest Information Center.
^q Hill, Ward, 2011a. Site record for P-43-002803 on file at the Northwest Information Center.
^r Hill, Ward, 2011b. Site record for P-43-002807 on file at the Northwest Information Center.
^s Baily, Sandy, 1981. Site record for P-43-003021 on file at the Northwest Information Center. SHPC, 1988. Site record for P-43-03021 on file at the Northwest Information Center.
^t Maggi, F., L. Dill, and J. Kusz, 2009. Site record for P-43-03021 on file at the Northwest Information Center.
^u De Shazo, Stacey, 2018. Site record for P-43-03021 on file at the Northwest Information Center.
^v Supernowicz, Dana E., 2013. Site record for P-43-03126 on file at the Northwest Information Center.
^w Jackson, G., 1959. Site record for P-43-03857 on file at the Northwest Information Center. Arbuckle, Jim, 1979. Site record for P-43-03857 on file at the Northwest Information Center.
^x Crawford, K.A., 2016. Site record for P-43-03945 on file at the Northwest Information Center.
^y Hotlkamp, Matthew, 2017. Site record for P-43-03946 on file at the Northwest Information Center.
 Source: Compiled using sources above and summary table provided by NWIC.



-  Project Area
-  Tribal Boundary

Figure IV.D-1
Proposed Site Plan

Project Site with Tribal Boundaries

(2) Other Sources

In addition to the NWIC records search, a variety of sources were consulted in July 2022 to obtain information regarding the cultural context of the city (Table IV.D-3). Sources included the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), Built Environment Resource Directory (BERD), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI). Specific information about the city, obtained from historic-era maps and aerial photographs, is presented in the City of Saratoga section.

TABLE IV.D-3 ADDITIONAL SOURCES CONSULTED

Source	Results
National Register of Historic Places (NRHP) ^a	Positive; Hutton, Warner, House (N2317), Paul Masson Mountain Winery (N1191), Miller-Melone Ranch (N1822), Saratoga Foothill Club (N2280), Saratoga Village Library (N2356), Villa Montalvo (N598), and Welch-Hurst (N668).
California Register of Historical Resources (CRHR) ^b	Negative
Built Environment Resource Directory (BERD) ^c	Positive; see Appendix C-5, Table C-5.1.
California Historical Landmarks (CHL) ^d	Positive: Saratoga (No. 435) and Paul Masson Mountain Winery (No. 733).
California Points of Historical Interest (CPHI) ^e	Positive: Judge James R. Welch’s Redwood Lodge (and Grounds) (No. P501).
Caltrans Historic Bridge Inventory (2016) ^f	Negative
Bureau of Land Management (BLM) General Land Office Records ^g	Positive; see Table IV.D-4.
Local Registers (Historical Societies/Archives)	Positive; see Appendix C-4. The Saratoga Historical Foundation and the Santa Clara County Historical and Genealogical Society were contacted on July 19, 2022, July 28, 2022. No comments have been received.

^a National Park Service U.S. Department of the Interior, n.d. National Register of Historic Places. Available at: <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>, accessed July 19, 2022.
^b California Office of Historic Preservation, n.d. “Santa Clara County.” California Historical Resources. Available at: <https://ohp.parks.ca.gov/ListedResources/?view=county&criteria=43>, accessed July 19, 2022.
^c California Office of Historic Preservation, n.d. “Santa Clara County.” Built Environment Resource Directory (BERD). Available at: https://ohp.parks.ca.gov/?page_id=30338, accessed July 19, 2022.
^d California Office of Historic Preservation, n.d. “Santa Clara County.” California Historical Resources. Available at: <https://ohp.parks.ca.gov/ListedResources/?view=county&criteria=43>, accessed July 19, 2022.
^e California Office of Historic Preservation, n.d. “Santa Clara County.” California Historical Resources. Available at: <https://ohp.parks.ca.gov/ListedResources/?view=county&criteria=43>, accessed: July 19, 2022.
^f Baughn, James, 2020. National Bridge Inventory Data. Available at: <https://bridgereports.com/ca/>, accessed July 19, 2022.
^g Bureau of Land Management (BLM), 2022. General Land Office Records. Available at: <https://gloreports.blm.gov>, accessed August 24, 2022.
 Source: Compiled using sources above.

TABLE IV.D-4 LAND PATENTS

Name(s)	Year	Accession Number	Type	T; R; Section
Manuel Alviso	1866	CACAAA 136642	Grant-Spanish/ Mexican	T:7S, R:1W, Sec 29
Dioniso Fernandez				T:7S, R:1W, Sec 30
Maximo Francisco Fernandez				T:7S, R:1W, Sec 31
Jose Zenon Fernandez				T:7S, R:1W, Sec 32
Manuela Loveto Fernandez				T:7S, R:2W, Sec 25
Petra Enriquez Fernandez		CACAAA 136642		T:7S, R:2W, Sec 36 T:8S, R:1W, Sec 36 T:8S, R:1W, Sec 6
		CACAAA 136642		T:8S, R:2W, Sec 1 T:8S, R:2W, Sec 12 T:7S, R:1W, Sec 29 T:7S, R:1W, Sec 32 T:8S, R:1W, Sec 5
USA	1882	CACAAA 000114	Indemnity List Base- Valid Lie	T:7S, R:1W, Sec 29 T:7S, R:1W, Sec 30 T:7S, R:1W, Sec 31 T:7S, R:1W, Sec 32 T:7S, R:1W, Sec 29 T:7S, R:1W, Sec 32
Jose Hernandez Sebastian Peralta	1860	CACAAA 136640	Grant- Spanish/Mexican	T:7S, R:1W, Sec 32 T:8S, R:1W, Sec 5 T:8S, R:1W, Sec 8
State of California	1872 1889	CACAAA 000638 CACAAA 003865 01	Grant-Certain Land to State	T:7S, R:2W, Sec 26 T:7S, R:2W, Sec 35
	1869	CACAAA 011840 02	Indemnity Selections	T:8S, R:2W, Sec 11
Nicholas Corpstein	1879	CA0370__034 CACAAA 137782	Homestead Entry Original	T:7S, R:2W, Sec 35
Frank Gubser	1870	CA0040__038 CACAAA 137659	Sale-Cash Entry	T:7S, R:2W, Sec 35
Joseph Smith	1875	CA0360__147 CACAAA 137770	Homestead Entry Original	T:7S, R:2W, Sec 35
John S. Brinkley	1868	CA0020__222 CACAAA 136717	Sale-Cash Entry	T:8S, R:1W, Sec 7
John W. Farwell	1868	CA0020__223	Sale-Cash Entry	T:8S, R:1W, Sec 7
Heirs of John W. Farwell	1868	CACAAA 136719	Sale-Cash Entry	T:8S, R:1W, Sec 7
A. Mccall	1868	CA0020__220 CACAAA 136714	Sale-Cash Entry	T:8S, R:1W, Sec 7
Nils Sjolholm	1868	CA0020__208 CACAAA 136708	Sale-Cash Entry	T:8S, R:1W, Sec 7
L. W. Sykes	1868	CA0020__221 CACAAA 136716	Sale-Cash Entry	T:8S, R:1W, Sec 7

TABLE IV.D-4 LAND PATENTS

Name(s)	Year	Accession Number	Type	T; R; Section
Tobias B. Jamison	1868	CA0030__023	Sale-Cash Entry	T:8S, R:1W, Sec 8
Pleasant S. Langford	1882	CA0120__372	Sale-Cash Entry	T:8S, R:1W, Sec 8
George McCracken	1868	CA0020__227 CACAAA 136724	Sale-Cash Entry	T:8S, R:1W, Sec 8
Arthur S. Caldwell	1870	CA0030__496	Sale-Cash Entry	T:8S, R:2W, Sec 2
Isaac V. Covert	1870	CA0040__022	Sale-Cash Entry	T:8S, R:2W, Sec 2
Jerome B. Fox	1870	CA0030__497	Sale-Cash Entry	T:8S, R:2W, Sec 2
Joshua H. Lathrop	1869	CA0030__325	Sale-Cash Entry	T:8S, R:2W, Sec 2
Richard Maher	1879	CA0370__030 CACAAA 137790	Homestead Entry Original	T:8S, R:2W, Sec 2
Heirs of James P. Spinger Mary Spinger	1870	CACAAA 137652 CACAAA 137652 01	Sale-Cash Entry	T:8S, R:2W, Sec 2
Mary Spinger James P. Spinger	1870	CA0030__383 CA0040__388	Sale-Cash Entry	T:8S, R:2W, Sec 2
Jerome B. Fox	1870	CA0030__497	Sale-Cash Entry	T:8S, R:2W, Sec 3
Alexandro Rodoni	1889	CA0410__134 CACAAA 137895	Homestead Entry Original	T:8S, R:2W, Sec 3
Charles E. Smith	1870	CA0030__495	Sale-Cash Entry	T:8S, R:2W, Sec 3
John Brown	1869	CT-0378-051	Indian Allotment – General	T:8S, R:2W, Sec 11
Seaborn P. Hutchinson	1890 1877	CA0410__277 CACAAA 137907 CA0100__056	Homestead Entry Original Sale-Cash Entry	T:8S, R:2W, Sec 11
Lewis P. Sage	1877	CA0100__057	Sale-Cash Entry	T:8S, R:2W, Sec 11
Theodore P. Shirley	1870	CA0030__481	Sale-Cash Entry	T:8S, R:2W, Sec 11
Mary Jane Smith Elisha Hughes	1871	CA0050__377	Sale-Cash Entry	T:8S, R:2W, Sec 11
John C. Hutchinson	1872	AGS-0297-364 CACAAA 137696	State Grant-Agri College	T:8S, R:2W, Sec 12
Hannah McCarty	1870	CA0040__120	Sale-Cash Entry	T:8S, R:2W, Sec 12

Source: BLM, 2022.

(3) Native American Consultation

A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on May 26, 2022. On July 5, 2022, the NAHC responded that the SLF search was completed with negative results and provided a list of 15 Native American tribal organizations and individuals that may have information about the city (Appendix C-5). The City of Saratoga completed Native American consultation in accordance with Assembly Bill (AB) 52 and Senate Bill (SB) 18.

Cogstone sent consultation letters to the 15 Native American tribal organizations and individuals on July 19, 2022, via United States Postal Service (USPS) certified mail (Appendix C-5, Table C-5.1. Follow-up emails were sent on August 2, 2022, and telephone calls were made on September 30, 2022.

On September 30, 2022, Amah Mutsun Tribal Band of Mission San Juan Bautista Chairperson Irenne Zwierlein during a follow up telephone call requested cultural sensitivity training for construction personnel prior to ground disturbance. Chairperson Zwierlein further said “you know what to do” if a resource is found. In context, this statement is interpreted as a request for notification and possible additional consultation with the Tribe if a Native American resource is found.

On September 30, 2022, Rumsen Am:a Tur:ataj Ohlone Chairperson Dee Ybarra indicated that the project was out of their tribal territory and that they do not comment on other tribal territories unless asked to participate [by resident groups].

On September 30, 2022, Tamien Nation Chairwoman Quirina Geary requested formal consultation under SB 18 and the City sent their current general plan, the proposed changes, and the standard mitigation measures for Tribal Cultural Resources. On November 1, 2022, a teleconference meeting was held with Chairwoman Geary. She requested review the EIR prepared for the Marshall Lane Subdivision project and a review of the proposed Cultural and Tribal Cultural Resources mitigation measures in this Draft EIR. Full comment is in Appendix C-5.

b. Historical Context

The following subsection describes the historical context for the City of Saratoga from prehistoric setting to the present day.

(1) Prehistoric Setting

Early archaeological surveys in the San Francisco Bay Area (Bay Area) were conducted by Neels Nelson in 1907 and 1908, and resulted in the identification of over 400 “shell heaps, earth mounds, and a few minor localities that cannot be termed anything but temporary camp sites.”² Nelson recorded more than 100 shellmounds along the bay shore of Alameda and Contra Costa counties, including some of the most important sites in central California, and mapped 18 sites in San Francisco County. Three sites in the northeast bay provided the basis for the initial study of cultural change in central California. These sites include the Emeryville shellmound (CA-ALA-309)

² Nelson, Nels C., 1909. Shellmounds of the San Francisco Bay Region. University of California Publications in American Archaeology and Ethnology Vol. 7, No. 4. Berkeley, page 310.

in Alameda County, and two sites in Contra Costa County, the Ellis Landing site (CA-CCO-295) and the Fernandez site (CA-CCO-259), which is located slightly inland in Rodeo Valley.

Also, during the early 1900s, Llewellyn L. Loud described and mapped the remains of a dozen mounds at the north end of the Santa Clara Valley.³ Many of the mounds were located within the Rancho Posolmi and had already been disturbed or destroyed by farming activities or construction. Loud's excavations at CA-SCL-1, often referred to as the Castro Mound or Ponce site,⁴ were among the earliest and most extensive in the area. Among the cultural remains documented in the large mound midden were two house floors and 61 burials, many with mortuary items. Compared to other Bay Area mounds from the same period, Loud noted a difference in the number and type of shellfish remains in the assemblages from the South Bay sites.

The studies in the Bay Area conducted in the early 1900s on the northern, eastern, and southern bay shores formed the basis for an initial study of cultural change in the Bay Area and the Sacramento–San Joaquin Delta and led to the later development of the Central California Taxonomic System (CCTS). The CCTS is the result of the efforts of several researchers (e.g., Beardsley,⁵ Heizer⁶) and has been further refined over the succeeding decades. The tripartite CCTS classification scheme defines three temporal periods (Early, Middle, and Late) that are marked by changes in distinct artifact types, subsistence orientation, and settlement patterns. The generalized periods are associated with regionally based cultural patterns.⁷ As employed by researchers in the Bay Area,⁸ these periods and associated patterns are outlined in Table IV.D-5.

³ Loud, L.L., 1912. Yñigo Mounds. In Notes on the Castro Mound. University of California Archaeological Research Facility MS #361. On file, Lowie Museum, University of California, Berkeley.

⁴ Beardsley, R.K., 1954. Temporal and Areal Relationships in Central California Archaeology, pp. 92-94. University of California Archaeological Survey Reports 24 and 25, Berkeley.

Moratto, M.J., 1984. California Archaeology, p. 233. Academic Press, San Diego.

⁵ Beardsley, R.K., 1948. Culture Sequences in Central California Archaeology. *American Antiquity* 14(1), pp. 1-28.

Beardsley, R.K., 1954. Temporal and Areal Relationships in Central California Archaeology. University of California Archaeological Survey Reports 24 and 25, Berkeley.

⁶ Heizer, R.F., 1949. The Archaeology of Central California, I: The Early Horizon. University of California Anthropological Records Vol. 12, No. 1, Berkeley.

⁷ Bennyhoff, J.A. and D.A. Fredrickson, 1969. A Proposed Integrative Taxonomy for Central California Archaeology. Unpublished manuscript. Department of Anthropology, Sonoma State University. Reprinted in 1994. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by J.A. Bennyhoff and D.A. Fredrickson*, edited by R.E. Hughes, pp. 15-24. Contributions of the University of California Archaeological Research Facility, No. 52, Berkeley.

Wallace, W.J., 1955. A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.

Wallace, W.J., 1978. Post-Pleistocene Archaeology, 9000 to 2000 B.C. In *California*, edited by R.F. Heizer, pp. 25-36. Handbook of North American Indians, Vol. 8, W.G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

⁸ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones, pp.233-262. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

TABLE IV.D-5 ARCHAEOLOGICAL TIME PERIODS AND PATTERNS IN THE BAY AREA

Period	Cultural Pattern	Timeframe
Early Period	Millingstone Pattern	11,000–5500 years before present (B.P.)
	Windmiller Pattern*	5500–2500 B.P.
Middle Period	Berkeley Pattern	2500–1000 B.P.
Late Period	Augustine Pattern	1000 B.P. to Historic Contact

* The presence of the Windmiller Pattern during the Early Period in the Bay Area is controversial, e.g., Heizer, R.F., 1949. *The Archaeology of Central California, I: The Early Horizon*. University of California Anthropological Records Vol. 12, No. 1. Berkeley.

Gerow, B.A. (with R.W. Force), 1968. *An Analysis of the University Village Complex, with a Reappraisal of Central California Archaeology*. Stanford University Press, Palo Alto, California. Gerow, B.A., 1974. *Co-traditions and Convergent Trends in Prehistoric California*. San Luis Obispo County Archaeological Society Occasional Paper 8.

Bennyhoff, J.A. and D.A. Fredrickson, 1969. *A Proposed Integrative Taxonomy for Central California Archaeology*. Unpublished manuscript. Department of Anthropology, Sonoma State University. Reprinted in 1994. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by J.A. Bennyhoff and D.A. Fredrickson*, edited by R.E. Hughes, pp. 15-24. Contributions of the University of California Archaeological Research Facility, No. 52. Berkeley.

Moratto, M.J., 1984. *California Archaeology*. Academic Press, San Diego.

Bennyhoff, J.A., 1994. *Recent Thoughts on Archaeological Taxonomy*. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by J.A. Bennyhoff and D.A. Fredrickson*, edited by R.E. Hughes, pp. 105–107. Contributions of the University of California Archaeological Research Facility, No. 52. Berkeley) and may be referred to elsewhere as the Lower Berkeley Pattern (e.g., Milliken et al. 2007).

Milliken, Randolph T., Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Levanthal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson, 2007. *Punctuated Culture Change in the San Francisco Bay Area*. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 99-123. AltaMira Press, Lanham, Maryland.

Source: Compiled using sources above.

Early Period (11,000-2500 B.P.)

Archaeological evidence is rare of occupation in the Bay Area dating earlier than 6,000 years ago during the Early Holocene when sea levels were dramatically lower than today. It is likely that sea-level rise and Holocene alluvial deposits, which are up to 33 feet (10 meters) thick in some locations around the Bay region, buried many prehistoric sites in this area.⁹ One of the oldest

Lightfoot, K.G. and E.M. Luby, 2002. *Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay*. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones, pp.263-281. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

Milliken, Randolph T., Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Levanthal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson, 2007. *Punctuated Culture Change in the San Francisco Bay Area*. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 99-123. AltaMira Press, Lanham, Maryland.

⁹ Meyer, J., 2004. *Geoarchaeology: Overview and Research Context*. In *SF-80 Bayshore Viaduct Seismic Retrofit Projects Report on Construction Monitoring, Geoarchaeology, and Technical and Interpretive Studies for Historical Archaeology*, edited by M.

cultural deposits in the Bay Area is located at Tulare Hill. The Metcalf site (CA-SCL-178) was discovered 3.3 meters below the surface in buried soil at the mouth of Metcalf Creek and the earliest occupation layer dates to 11,050–9475 cal B.P.^{10,11} At another South Bay Millingstone site in Santa Clara County (CA-SCL-65), two flexed burials were found beneath cairns of millingstones dating between 7,500 and 7,000 years ago.¹² Along with the Sand Hill Bluff shellmound on the peninsula coast of Santa Cruz County (CA-SCR-7), the artifact assemblages in these Millingstone Pattern sites include large numbers of handstones and milling slabs, as well as core and flake tools.¹³

Windmill Pattern sites in the Sacramento Valley and Sacramento–San Joaquin Delta often contain manos and metates (grinding stones), as well as many mortar fragments, large obsidian concave base and stemmed projectile points, rectangular *Olivella* beads, perforated and phallic charmstones, ventrally extended burials, and a westerly orientation of graves. Artifact assemblages from the South Bay peninsula, such as from CA-SCL-354 in the Los Altos foothills, including *Olivella* rectangular beads (type L1) and Rossi square-stemmed and large side-notched projectile points, imply that characteristics of Windmill assemblages were present.¹⁴

Middle Period (2500–1000 B.P.)

The Berkeley Pattern is found throughout the Bay region during the Late Holocene. The earliest assemblages attributable to this pattern are coeval with the Windmill Pattern, including the lower levels of the West Berkeley site (CA-ALA-307) in Alameda County and the University Village site (CA-SMA-77) in San Mateo County.¹⁵ Artifacts typical of the Berkeley Pattern include spire-lopped (Types A1a and A1b) *Olivella* shell beads, bone tubes and beads, bird-bone whistles,

Praetzelis. Produced by the Anthropological Studies Center, Sonoma State University, Rohnert Park. Submitted to California Department of Transportation, District 4, Oakland.

Moratto, M.J., 1984. California Archaeology, pp. 221, 277. Academic Press, San Diego.

Ragir, S., 1972. The Early Horizon in Central California Prehistory. Contributions of the University of California Archaeological Research Facility, No. 15. Berkeley.

¹⁰ The raw radiocarbon dates have been calibrated (cal) to provide calendar dates.

¹¹ Meyer, J. and J. Rosenthal, 2007. Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4. On file at the Northwest Information Center, Sonoma State University, CA. S-33600.

¹² Fitzgerald, R.T., 1993. Archaic Milling Cultures of the Southern San Francisco Bay Area. In Archives of California Prehistory, Vol. 35. Coyote Press, Salinas, California.

¹³ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by J.M. Erlandson and T.L. Jones, pp.233–235. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

¹⁴ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by J.M. Erlandson and T.L. Jones, pp.244–250. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

¹⁵ Elsasser, A.B., 1978. Development of Regional Prehistoric Cultures. In California, edited by R.F. Heizer, pp. 37-40. Handbook of North American Indians, Vol. 8, W. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Wallace, W.J. and D.W. Lathrap, 1975. West Berkeley (CA-ALA-307): A Culturally Stratified Shellmound on the East Shore of San Francisco Bay. Contributions of the University of California Archaeological Research Facility 29. Berkeley.

quartz crystals, serrated mammal scapulas, and ground bone awls.¹⁶ Projectile points are commonly contracting stemmed and lanceolate types, some of which are made from obsidian.¹⁷ Burials are variable flexed and semi-flexed with inconsistent orientation, and there is an increase in mortuary items, particularly during the late Middle Period, compared to few mortuary items identified during the Early Period in Bay Area sites.

Milling implements include large and small boulder or cobble mortars and various types of pestles, suggesting small seeds or acorns formed an important part of the diet. In the South Bay, processing of hard seeds continued to be important throughout this period, as evidenced by the number of milling slabs and handstones in the artifact assemblages from this area. Other plant resources included hazel nuts, cattail seeds, grass, and soaproot bulbs; the latter were roasted in earth ovens. Faunal analyses indicate the diet during this period was rich and varied, with a variety of small and large mammals, fish, and birds, as well as mussel, oyster, and clam.

Shellfish species exploited varied depending on location within the Bay Area.¹⁸ Along the West Bay in San Mateo County and the East Bay of Alameda County, bay mussels, oyster and clam are more prevalent. In contrast, horn snail, oyster, and bay mussel are the principal shellfish recovered from South Bay mounds. Large accumulations of shellfish remains, or “shellmounds,” formed over hundreds, or even thousands, of years through accretion at village sites fronting the Bay that were reused seasonally or year-round.¹⁹ Numerous shellmounds contain hundreds of burials as well as ceremonial items, house floors, hearths and storage pits, indicating they were used as burial, ceremonial, and residential places.²⁰

¹⁶ Elsasser, A.B., 1978. Development of Regional Prehistoric Cultures. In *California*, edited by R.F. Heizer, pp. 38-39. Handbook of North American Indians, Vol. 8, W. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Moratto, M.J., 1984. *California Archaeology*, pp. 264-265. Academic Press, San Diego.

Bennyhoff, J.A. and R. Hughes, 1987. Shell Bead and Ornament Exchange Networks Between California and the Western Great Basin, p. 118. *Anthropological Papers of the American Museum of Natural History* Vol. 64, Pt. 2. American Museum of Natural History, New York.

¹⁷ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region, pp.233–262. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones.

¹⁸ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region p. 252. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones.

¹⁹ Lightfoot, K.G., 1997. Cultural Construction of Coastal Landscapes: A Middle Holocene Perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by J.M. Erlandson and M.A. Glassow, p. 135. *Perspectives in California Archaeology*, Vol. 4. Institute of Archaeology, University of California, Los Angeles.

²⁰ Lightfoot, K.G., 1997. Cultural Construction of Coastal Landscapes: A Middle Holocene Perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by J.M. Erlandson and M.A. Glassow, pp. 131-136. *Perspectives in California Archaeology*, Vol. 4. Institute of Archaeology, University of California, Los Angeles.

Lightfoot, K.G. and E.M. Luby, 2002. Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones, pp. 270, 276-277. *Perspectives in California Archaeology*, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

The well-known Emeryville shellmound (CA-ALA-309) and Ellis Landing site (CA-CCO-295) also date to this period. Within the former Rancho Posolmi, radiocarbon dates obtained from excavations conducted in 2008 in the mound initially recorded in 1912 by Loud indicate CA-SCL-12/H was occupied throughout the late Early Period and Middle Period (3300–2400 B.P.) with some evidence of Late to Historic Period occupation.²¹ During the recent excavations, a variety of cultural materials, including lithic flakes and tools, shellfish, faunal bone, and human remains, were recovered from intact occupation components at depths up to 1.8 meters below the surface. CA-SCL-12/H also included the gravesite of Lope Yñigo, who is among the few Native Americans that were awarded Mexican land grants.²²

Late Period (1000 B.P. to Historic Contact)

In the Bay Area, the Augustine Pattern follows the “golden age of shell mound communities” of the Berkeley Pattern.²³ A number of changes in subsistence, foraging, and land use patterns that begin to reflect the use pattern known from Historic Period Native American groups in the area is evident. The pattern is identified by the introduction of bow and arrow technology, the use of harpoons, and tubular tobacco pipes. There is an increase in the intensity of subsistence exploitation that correlates directly with population growth, and greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle.²⁴ Both coiled and twined basketry were used as domestic and ceremonial items.

Population size and the number of settlements increased during this period, although the large shellmound villages of the Berkeley Pattern were apparently no longer favored residential places and many were abandoned.²⁵ The dry conditions during the Medieval Climatic Anomaly (MCA),

²¹ Byrd, B. and J. Berg, 2009. Phase II Excavations in the Caltrans Right-of-Way at CA-SCL-12/H, Santa Clara County, California. On file at the Northwest Information Center, Sonoma State University, CA. S-36517.

Loud, L.L., 1912. Yñigo Mounds. In Notes on the Castro Mound. University of California Archaeological Research Facility MS #361. On file at the Lowie Museum, University of California, Berkeley.

²² Byrne, S. and B. F. Byrd, 2009. Mound Occupation in the South San Francisco Bay Area—The Yñigo Mound in Historical Context, pp. 82-83. Proceedings of the Society for California Archaeology 21.

Shoup, L.H. and R.T. Milliken, 1999. Inigo of Rancho Posolmi. The Life and Times of a Mission Indian. Ballena Press, Novato, California.

²³ Lightfoot, K.G. and E.M. Luby, 2002. Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by J.M. Erlandson and T.L. Jones, p. 276. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

²⁴ Moratto, M.J., 1984. California Archaeology, pp. 211-214. Academic Press, San Diego.

²⁵ Lightfoot, K.G. and E.M. Luby, 2002. Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by J.M. Erlandson and T.L. Jones, p. 264, 277. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

which produced droughts across the West between about A.D. 650–850 and A.D. 1150–1250,²⁶ may be related to the abandonment of shellmound villages as primary residential locations.²⁷ Settlement strategies were apparently reorganized and focused on a dispersed pattern, with the establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources.

The Augustine Pattern ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite, *Olivella* beads, and obsidian. Compared to the Middle Period, the use and occurrence of shell beads with burials blossomed.²⁸ *Haliotis* banjo pendants may represent the introduction and spread of the Kuksu cult, beginning during the transition from the Middle to Late Period in the Bay Area.²⁹ The magnitude of non-dietary *Olivella* shells in coastal sites during the Late Period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to the interior groups.

(2) Ethnography-Costonoan

The area covered by the city is within an area historically occupied by the tribelets of the Costonoan linguistic group, who are also known today as the Ohlone (Figure IV.D-1). Costonoan territory extended between the Carquinez Strait and San Pablo Bay on the north, southward along the coast beyond Monterey Bay to Carmel Valley, and inland to the coast range.³⁰

²⁶ Jones, Terry L., G. M. Brown, L. Mark Raab, J. Vickar, W. G. Spalding, Douglas J. Kennett, Andrew York, and Phillip Walker, 1999. Environmental Imperatives Reconsidered: Demographic Crises in Western North America During the Medieval Climatic Anomaly. *Current Anthropology* 40:137-156.

²⁷ Lightfoot, K.G. and E.M. Luby, 2002. Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones, p. 277, 279. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

²⁸ Milliken, R.T. and J.A. Bennyhoff, 1993. Temporal Changes in Beads as Prehistoric California Grave Goods. In *There Grows a Green Tree: Papers in Honor of D.A. Fredrickson*, edited by G. White, P. Mikkelsen, W.R. Hildebrandt, and M.E. Basgall, pp. 381–395. Center for Archaeological Research at Davis, Publication 11. University of California, Davis.

Milliken et al. 2007, pp. 116-117. Milliken, Randolph T., Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Levanthal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson, 2007. Punctuated Culture Change in the San Francisco Bay Area. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 99-123. AltaMira Press, Lanham, Maryland.

²⁹ Hylkema, M., 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by J.M. Erlandson and T.L. Jones, p. 260. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

³⁰ Levy, R., 1978. Costonoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, p. 485, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Neighboring groups included the Coast Miwok north across the Carquinez Strait, the Miwok and Northern Valley Yokuts to the east, and the Salinan and Esselen to the south.

Spanish mission records, diaries, and journals provide most of the information about the Costanoans, as little ethnographical research has been conducted in the twentieth century.³¹ The most thorough study, by Milliken,³² used mission records, and Margolin³³ reconstructed Native American life in the Bay Area.

Linguistics

Linguistically, the tribelets belong to the Utian, or Miwok-Costanoan language family, part of a hypothesized larger Penutian linguistic stock.³⁴ Eight branches or dialects of Costanoan language, each associated with a geographic location, have been discerned by linguists, although Milliken³⁵ suggests the differences reflect the “amalgamation of later Costanoan speakers at the various missions.” The city lies within the *Tamyen* linguistic territory and the southern extent of the *Ramaytush* linguistic territory.³⁶ In 1770, there were approximately 1,200 *Tamyen* speakers inhabiting the southern end of San Francisco Bay and the lower Santa Clara Valley and 1,400 *Ramaytush* speakers in the San Francisco peninsula.

Through detailed examination of mission records, marriage patterns, and dialect variation seen in personal names, Milliken³⁷ delineated 43 separate political entities (tribelets) in the San Francisco Bay, Santa Cruz, and inland area, with another six or so tribelets in the south Monterey Bay and Carmel Valley region. Descendants of Costanoan speakers prefer to be called by the name of the tribelet from which they are descended, such as Mutsun or Rumsen. When their heritage is mixed or the specifics have been lost over generations, preference is for use of a native term, Ohlone,

³¹ Kroeber, A.L., 1925. Handbook of the Indians of California. Bureau of American Ethnology, Smithsonian Institution Bulletin 78. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Levy, R., 1978. Costanoan. In Handbook of North American Indians, California, edited by R.F. Heizer, p. 495, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

³² Milliken, R., 1995. A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810. Ballena Press Anthropological Papers, No. 43. Ballena Press, Menlo Park, California.

³³ Margolin, M., 1978. The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area, Heydey Books, Berkeley, California.

³⁴ Mithun, M., 2001. The Languages of Native North America, p. 309. Cambridge University Press, Massachusetts.

³⁵ Milliken, R., 1995. A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810. p. 26. Ballena Press Anthropological Papers, No. 43. Ballena Press, Menlo Park, California.

³⁶ Levy, R., 1978. Costanoan. In Handbook of North American Indians, California, edited by R.F. Heizer, p. 485, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

³⁷ Milliken, R., 1995. A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810. p. 229. Ballena Press Anthropological Papers, No. 43. Ballena Press, Menlo Park, California.

rather than the European-imposed term Costanoan (“coastal dwellers”).³⁸ The study corridor falls within the ethnohistoric territory of the *Puichon*, *Alson*, and *Tamien* tribelets.³⁹

Tribelet Territory and Village Organization

Each of the numerous Ohlone tribelets occupied one or more villages plus a number of seasonal camps.⁴⁰ Tribelets were also political units that were structured by similarities in language and ethnicity, each holding claim to a designated portion of territory. Topographic features, such as rivers, watersheds, and ridgelines, defined tribelet territories and the boundaries were strictly respected. Inland villages were typically situated along a river or stream while coastal villages were situated on high ground away from the shoreline.⁴¹ Dwellings were domed structures thatched with tule or grass over a pole framework; coastal groups constructed conical houses from redwood. Villages also contained assembly halls, dance plazas, and sweathouses. The deceased were either buried or cremated.⁴²

Food and Resource Usage

The rich resources of the ocean, bays, valleys, and mountains provided Costanoan-speaking peoples with food and all their material needs.⁴³ The primary food staple was the acorn, supplemented by a great variety of animal and plant resources. They consumed a variety of nuts, seeds, berries, wild onions, tule roots, and greens. Large and small game included deer, elk, antelopes, bears, mountain lions, raccoons, ground squirrels, rabbits, and jackrabbits, plus seals and stranded whales. Migrating waterfowl, pigeons, quails, and hawks were also part of their diet, along with a variety of anadromous fish (steelhead, salmon, and sturgeon), sharks, sardines, lampreys, mussels, and abalone. Throughout the Bay Area, the large number of shell middens attests to their reliance on marine resources. The Ohlone also practiced annual burning to ensure an abundance of seed-bearing annuals, to increase foraging areas for large game, and to facilitate the gathering of fall-ripened acorns.

³⁸ Margolin, M., 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*, Heydey Books, Berkeley, California.

³⁹ Milliken, R., 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810*. p. 228. Ballena Press Anthropological Papers, No. 43. Ballena Press, Menlo Park, California.

⁴⁰ Levy, R., 1978. Costanoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, p. 487, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴¹ Levy, R., 1978. Costanoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, p. 492, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴² Levy, R., 1978. Costanoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, pp. 490-491, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴³ Levy, R., 1978. Costanoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, pp. 491-492, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Tools

A wide array of tools, implements, and enclosures were used by the Ohlone for hunting, gathering, and processing natural resources.⁴⁴ Bows and arrows, traps and snares, deer-head disguises, bolas, nets and net sinkers, and enclosures/blinds were employed for hunting land mammals and birds. Tule watercraft was used for transportation and for hunting fish and waterfowl on enclosed bays and marshes. Fire-hardened digging sticks, beaters, and long poles were used for collecting plant resources. Once collected, seeds, roots, and nuts were placed in burden baskets and transported for processing or storage. The tools used to process food resources included portable stone mortars and pestles, bedrock mortars, hopper mortars, anvils, woven strainers and winnowers, leaching and boiling baskets, woven drying trays, and knives. Various foods were baked in earthen ovens. There were also shell spoons, basket dippers and mush bowls for serving food, woven water jugs, and woven containers for storing food. Most basketry was twined rather than coiled, woven from willow, rush and tule, and ornamented with *Olivella* shell beads, abalone pendants, quail plumes, and woodpecker scalps.

Trade

The Ohlone traded actively with neighboring groups.⁴⁵ The Ohlone traded mussels, abalone shells, dried abalone, and salt to the Yokuts and *Olivella* shells to the Miwok. From the groups to the east, they obtained pine nuts, feather blankets, basketry materials, paints, and obsidian. Historic records also indicate Ohlone triblets engaged in warfare with the Esselen, Salinan, and Northern Valley Yokuts over territorial disputes.⁴⁶

Contact

Traditional Ohlone lifeways were altered drastically beginning in the late 1700s and early 1800s with the establishment of presidios at Monterey and San Francisco by the Spanish military and of seven Franciscan missions within Ohlone territory.⁴⁷ Following the movement by many Ohlone to the missions, large-scale epidemics decimated the mission population and those who had remained in their villages.⁴⁸ It is estimated that the combined Ohlone population fell from a pre-

⁴⁴ Levy, R., 1978. Costanoan. In Handbook of North American Indians, California, edited by R.F. Heizer, pp. 491-493, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴⁵ Davis, J.T., 1961. Trade Routes and Economic Exchange among the Indians of California. Reports of the University of California Archaeological Survey 54, p. 23. University of California, Berkeley, Department of Anthropology.

⁴⁶ Levy, R., 1978. Costanoan. In Handbook of North American Indians, California, edited by R.F. Heizer, p. 488, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴⁷ Levy, R., 1978. Costanoan. In Handbook of North American Indians, California, edited by R.F. Heizer, pp. 486-487, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁴⁸ Milliken, R., 1995. A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810. Ballena Press Anthropological Papers, No. 43, pp. 129-134.

contact total of 10,000 down to 2,000 by the end of the mission period in 1834.⁴⁹ During the mission period, the dwindling Ohlone population also intermarried with other interior tribes at the missions, mixing their cultural identities.

Present Day Costonoan

Today, descendants of Costonoan tribes are concerned with revitalizing aspects of their culture, learning the language through notes collected by anthropologist John Harrington, and preserving the natural resources that played a vital role in traditional culture. Seven groups have petitioned the Bureau of Indian Affairs for federal recognition: the Amah-Mutsun Band of Ohlone/Costonoan Indians, Costonoan Band of Carmel Mission Indians, Costonoan Ohlone Rumsen-Mutsun Tribe, Costonoan Rumsen Carmel Tribe, Indian Canyon Band of Costonoan/Mutsun, Ohlone/Costonoan Esselen Nation, and the Ohlone/Costonoan Muwekma Tribe.⁵⁰

(3) Historic Setting

Spanish Period (1769-1822)

The earliest European explorations of California occurred in 1542, when Juan Rodríguez Cabrillo and his party landed near Point Loma near San Diego. Cabrillo had been tasked by the Spanish monarch with exploration of the western United States interior. Interaction with the native population was initiated, but intensive exploration and colonization of California by Spain did not occur until the 1700s.

In 1769, the Spanish developed plans to build three towns and four presidios (forts) along the California coastline stretching from San Diego northward to Monterey. The town sites, established between 1777 and 1797, included present-day Los Angeles, San Jose, and a small town near Santa Cruz named Branciforte. The presidios were established at San Diego, Santa Barbara, Monterey, and San Francisco. Under Spain, the borderlands were colonized as defenses against the intrusion of the English, French, Dutch, and Russians, with the Manila trade an important item for protection in California. They were held by two typical institutions: the mission and the presidio (Bolton 1913, 1921, 1930 as cited in Aviña, 1976).⁵¹

Mission San Diego Alcalá was founded in 1769, the first of 21 Franciscan missions built along the coast on the El Camino Real between San Diego and Sonoma. The goals of the missions were tri-fold: they established a Spanish presence on the west coast, provided a way to Christianize native

⁴⁹ Levy, R., 1978. Costonoan. In *Handbook of North American Indians, California*, edited by R.F. Heizer, p. 486, Vol. 8, W.G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

⁵⁰ 500 Nations, 2012. Petitions for Federal Recognition. Electronic document. Available at: http://500nations.com/tribes/Tribes_Petitions.asp, accessed July 13, 2012.

⁵¹ Aviña, R.H., 1976. *Spanish and Mexican Land Grants in California*. Arno Press, New York.

peoples, and served to exploit the native population as laborers. The mission system severely disrupted socio-political structure of the native population, especially those living in close proximity.⁵²

The arrival of the Franciscan missionaries during the Spanish period resulted in far-reaching alterations in Native American lifeways. These shifts included high mortality rates and social changes due to the introduction of European diseases and customs (e.g., European farming methods).⁵³ Due to the high mortality rates, many Native American villages were abandoned, with inhabitants fleeing to the missions because “As the Native Americans watched the Europeans remain healthy during the epidemics, they began to view disease as a form of divine punishment for human transgressions”⁵⁴ and “Believing that the Christian God held a power greater than their own, the Natives willingly joined the Spanish missions.”⁵⁵

The native population decreased because of a series of epidemics, and their traditional lifestyle was severely altered as neophytes were converted to Christianity and forced to work for the mission.

Mexican Period (1822-1847)

After Mexico gained independence from Spain in 1821, the Mission lands were secularized under the Secularization Act of 1833, but much of the land was transferred to political appointees. A series of large land grants that transferred Mission properties to private ownership were awarded by the Governors of California—Juan B. Alvarado, Manuel Micheltoarena and Pío Pico—between 1840 and 1846.⁵⁶ Ranches and farms were established throughout the San Diego region during this period.

⁵²Luomala, K., 1978. Tipai and Ipai. In California, edited by R.F. Heizer, p. 595. Handbook of North American Indians, W.C. Sturtevant, general editor, Volume 8. Smithsonian Institution, Washington, D.C.

⁵³Dobyns, H.F., 1983. Their Number Become Thinned: Native American Population Dynamics in Eastern North America. University of Tennessee, Knoxville.

Walker, Phillip L., and Travis Hudson, 1989. Chumash Healing: Changing Health and Medical Practices in an American Indian Society. Malki Museum Press, California.

⁵⁴Dobyns, H.F., 1983. Their Number Become Thinned: Native American Population Dynamics in Eastern North America. University of Tennessee, Knoxville.

⁵⁵Rushing, H.R., 1995. “In Sickness or In Health: European-Native American Contact and Disease.” Unpublished manuscript, p. 15. Directed Individual Study Seminar, Department of Anthropology, Summer II Term, Mississippi State University.

⁵⁶Cowan, R.G., 1977. Ranchos of California: A List of Spanish Concessions, 1775-1882 and Mexican Grants, 1822-1846. Historical Society of Southern California.

Ohles, W.V., 1997. Mission San Miguel Property and Padres. The Friends of the Adobes, Inc., San Miguel, California.

American Period (1848-Present)

The Mexican-American war followed on the heels of the Bear Flag Revolt of June 1846.⁵⁷ General Andrés Pico and John C. Frémont signed the Articles of Capitulation in December 1847, and with the signing of the Treaty of Guadalupe Hidalgo in February 1848, hostilities ended and Mexico relinquished California to the United States. Under the treaty, Mexico ceded the lands of present-day California, New Mexico, Arizona, and Texas to the United States for \$15 million.⁵⁸ Within two years following the treaty, California applied for admission as a state.

The City of Saratoga overlaps with the boundaries of the former Spanish/Mexican land grants Quito and Riconada de los Gatos (Figure IV.D-2). Rancho Quito, which also included parts of modern-day Cupertino, was given to José Zenon Fernandez and his son-in-law José Noriega (Manuela Fernández de Noriega) by Mexican California Governor Juan Alvarado in 1841.

José Noriega also served one term as the mayor of San Jose. The 13,130-acre rancho was patented by José M. Alviso and the heirs of José Zenon Fernandez in 1866. The Alvisos had sold part of the ranch to José Ramon Argüello California's first native-born governor in 1861.⁵⁹ Rancho Riconada de los Gatos was a 6,631-acre land grant given to Sebastian Peralta and Jose Hernandez in 1840 by California Governor Juan Alvarado in 1841. Peralta and Hernandez received a United States patent to the land in 1860.⁶⁰

(4) City of Saratoga

The early days of what would become the City of Saratoga began in 1847 when William Campbell settled on the banks of Saratoga Creek. Campbell planned to establish a new lumbering community and started work on a new sawmill, later known as Haun's Mill. In 1848, gold was discovered in the Sierra Foothills which resulted in a massive flood of immigrants to California.⁶¹

As enthusiasm for the Gold Rush came to an end by the mid-1850s, new settlers began to shift away from mining and looked towards the burgeoning cities and the great swaths of fertile land as a new source of income. Until 1864, cattle ranching served as the predominant economic force in the region. After the catastrophic drought of California in the 1860s and the subsequent

⁵⁷ Ohles, W.V., 1997. Mission San Miguel Property and Padres. The Friends of the Adobes, Inc., San Miguel, California.

⁵⁸ Fogelson, R.M., 1993. The Fragmented Metropolis: Los Angeles, 1850-1930, p. 10. University of California Press, Berkeley.

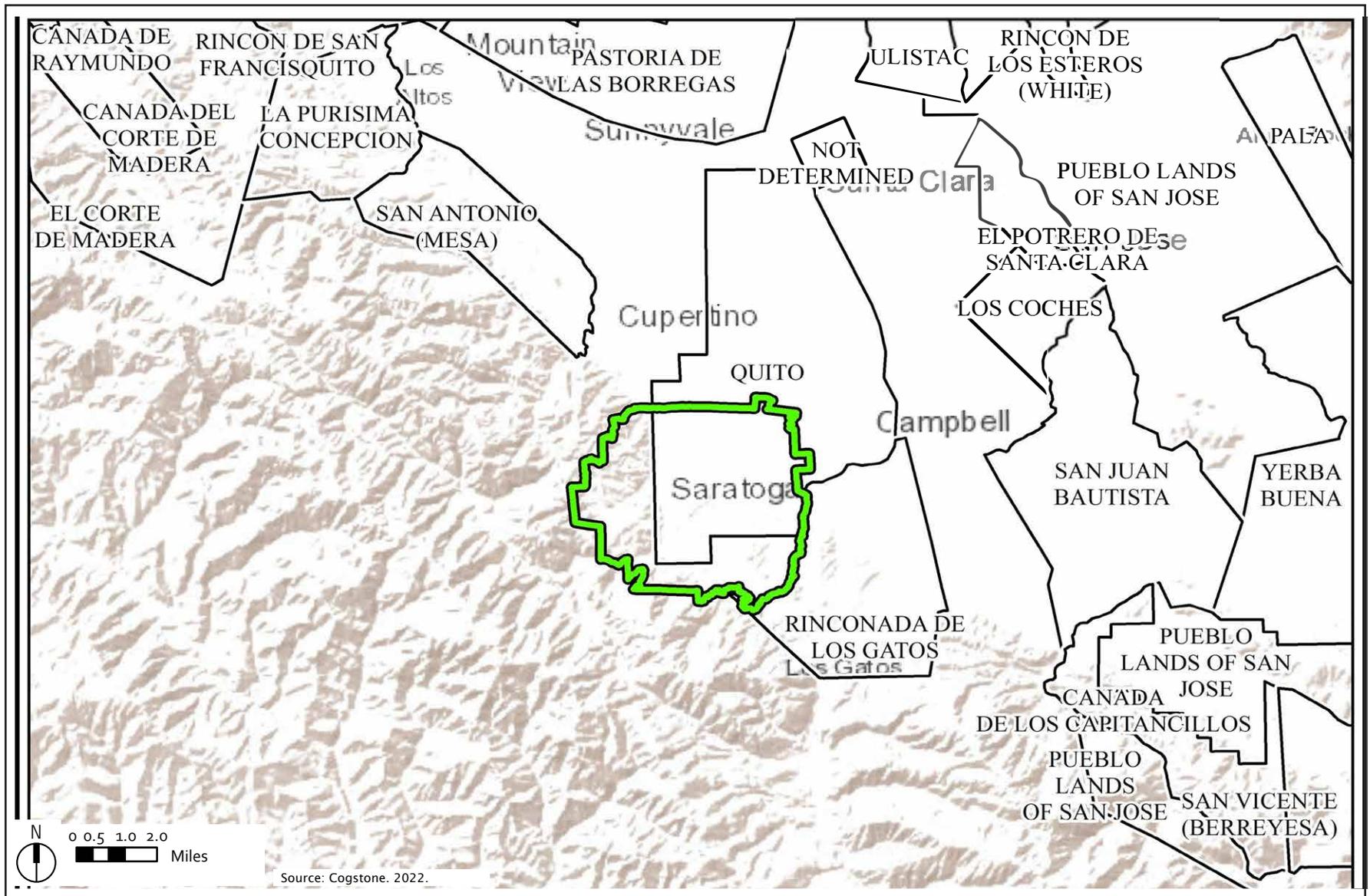
⁵⁹ Stanley, T., 2012. Early Land Grants and Two Local Ranchos. Available at: <https://patch.com/california/cupertino/bp--early-land-grants-and-two-local-ranchos>, accessed July 26, 2022.

⁶⁰ Town of Los Gatos, 2022. About Los Gatos. Available at: <https://losgatosca.gov/515/About-Los-Gatos>, accessed July 26, 2022.

⁶¹ Archives & Architecture, LLC, 2009. "Heritage Resources Inventory: City of Saratoga, Santa Clara County, California."

Prepared for: Planning Department City of Saratoga. Available:

<https://www.saratoga.ca.us/DocumentCenter/View/968/Heritage-Resource-Inventory---Context-Statement-PDF>, accessed July 19, 2022.



- Project Area
- Land Grant

Figure IV.D-2
Land Grant Map

collapse of the cattle industry, the once profitable business was replaced by grain farming. This resulted in Santa Clara County producing more than 30 percent of California's total wheat crop with Saratoga as one of the county's main growers until the mid-20th century.⁶²

With the arrival of the San Jose-Los Gatos Interurban Railroad (later known as the Peninsular Railway Co.) in 1904, Saratoga experienced substantial residential growth. Saratoga residents used the line to commute to work in San Jose until the line was eventually replaced in 1933 by buses. Following the end of World War II, the business community of Santa Clara County pushed for growth in non-agricultural sectors and by the early 1950s, Saratoga, like the rest of the region, replaced their orchards with residential subdivisions.

In 1956, out of concern that the growing boundaries of nearby San Jose would annex the land of Saratoga farmers, Saratoga residents voted to incorporate in October of that year. At the time of incorporation, Saratoga supported a population of 1,000 residents; this number increased to 26,810 residents by 1970. During the 1950s, the majority of the population was concentrated around Quinto Road, however, in the decades following incorporation agricultural land was rapidly converted into residential suburbs. In addition to this explosion of residential growth, commercial enterprises also expanded with the development of small shopping complexes such as the Saratoga Village Shopping Center. During Saratoga's period of development in the latter half of the 20th century, civic leaders strived to maintain a balance between modernization and preserving the city's historic character.⁶³

2. Regulatory Setting

This section describes the existing federal, State, and local regulatory frameworks related to cultural and tribal cultural resources.

a. Federal Regulations

(1) Historic Preservation Act of 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local

⁶² Archives & Architecture, LLC, 2009. "Heritage Resources Inventory: City of Saratoga, Santa Clara County, California." Prepared for: Planning Department City of Saratoga. Available: <https://www.saratoga.ca.us/DocumentCenter/View/968/Heritage-Resource-Inventory---Context-Statement-PDF>, accessed July 19, 2022.

⁶³ Archives & Architecture, LLC, 2009. "Heritage Resources Inventory: City of Saratoga, Santa Clara County, California." Prepared for: Planning Department City of Saratoga. Available: <https://www.saratoga.ca.us/DocumentCenter/View/968/Heritage-Resource-Inventory---Context-Statement-PDF>, accessed July 19, 2022.

levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assist Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

NHPA establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (i.e., historic properties) prior to undertakings.

(2) National Register of Historic Places

The NRHP was established by the NHPA in 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, or association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: It is associated with the lives of persons who are significant in our past.
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

(3) Section 106 of the Federal Guidelines

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP and SHPO must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 Code of Federal Regulations (CFR) Part 800, on such undertakings.

(4) Native American Graves Protection and Repatriation Act (NAGPRA) of 1990

The NAGPRA of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

b. State Regulations

The following section describes the existing State of California regulatory environment related to cultural and tribal cultural resources.

(1) California Environmental Quality Act

CEQA states that.... "It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of the project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects."

CEQA declares that it is state policy to.... "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed

project. In the event that a project is determined to have a potentially significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

(2) California Register of Historical Resources

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks No. 770 and above. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient

integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

(3) California Administrative Code, Title 14, Section 4308

This section states that “No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value.”

(4) Tribal Cultural Resources

As of 2015, CEQA Guidelines Section 21084.2 establishes that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment”. In order to be considered a “tribal cultural resource,” a resource must be either:

1. Listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
2. A resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. CEQA Guidelines Section 20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

(5) California Public Resources Code

California Public Resources Code, Section 5097.5 states that no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

(6) Native American Human Remains

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law as reviewed below.

In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if a potential human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the NAHC by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

c. Local

The following section describes the existing local regulatory environment related to cultural and tribal cultural resources.

(1) Saratoga Municipal Code Chapter 13, Heritage Preservation

Chapter 13, Heritage Preservation, of the Saratoga Municipal Code sets forth the Powers and Duties of the Heritage Preservation Commission, establishes a process to designate significant historic resources, and establishes review procedures and findings to evaluate alterations to designated resources. Heritage Resources are designated in Saratoga by the City Council following a recommendation from the Heritage Preservation Commission. The designation may be for a historic landmark, heritage lane or historic district if it satisfies any two or more of the adopted criteria, and also retains a substantial degree of architectural and structural integrity with respect to the original design, as determined by the Heritage Preservation Commission.

City Ordinance 15-65.075 – Preservation of Historic Buildings (Ord. No. 337, Section 1, 12-2-2015)

Any proposed construction or alteration work to an existing nonconforming structure that is listed on the City of Saratoga Historic Landmark List, Heritage Resource Inventory List, California Register of Historical Resources (CRHR) or National Register of Historic Places shall be exempt from the repair or alteration provisions of this Article provided all of the following requirements are satisfied:

- (a) The property must be listed on one of the following approved historic resource listings:
 - (1) City of Saratoga Historic Landmark List;

- (2) City of Saratoga Heritage Resource Inventory List;
- (3) California Register of Historical Resources (CRHR); or
- (4) National Register of Historic Places.

(b) The City's Heritage Preservation Committee shall review any proposed work exceeding one-hundred square feet or any work that is visible from an adjacent street and shall provide a recommendation to the Community Development Director as to the compatibility of the proposed repair or alteration work with the historic character of the structure.

(c) The proposed repair or alteration work shall maintain any front building façade that is visible from an adjacent street in a historically appropriate manner determined by the Heritage Preservation Committee.

The property shall be exempt from any square footage reconstruction limit based on floor area.

(2) Saratoga General Plan

The Saratoga General Plan addresses historic and cultural resources in the Land Use Element and Open Space and Conservation Element. The following goals and policies promote the recognition and consideration of historic resources. Relevant General Plan policies include, but are not limited to:

Land Use Element

Policy LU-12.1: Enhance the visual character of the City by encouraging compatibility of architectural styles that reflect established architectural traditions.

Policy LU-12.2: Develop zoning and other incentives for property owners to preserve historic resources and seek out historic designations for their respective properties.

Policy LU-12.3: Continue to participate in the Mills Act program which allows property owners of historic residences a reduction of their property tax.

Policy LU-12.4: Encourage public knowledge, understanding, and appreciation of the City's past and foster civic and neighborhood pride and sense of identity based upon the recognition and use of the City's heritage resources.

Policy LU-12.5: The Heritage Preservation Commission shall regularly update the City's Historic Resources Inventory.

Policy LU-12.6: Development proposals impacting any of the City's heritage land and/or any historic resources listed on any local or state inventory shall be reviewed by the Heritage Preservation Commission and the Planning Commission, as required.

Policy LU-12.7: For any project development affecting structures that are 50 years of age or older, conduct a historic review.

Policy LU-12.8: Protect significant archaeological, prehistoric, and paleontological Native American resources as required by CEQA.

Policy LU-12.9: Cooperate with the County of Santa Clara and property owners of historic resources within the Sphere of Influence and Urban Service Area to ensure that resources in these areas are provided the same high level of review and appropriate preservation as other historic resources within the City limits.

Policy LU 12.10: The City recognizes that since 1878 the Mountain Winery has been an important part of Saratoga's history and seeks to maintain the property's prominence and cultural relevance to the community.

IM LU-12.a: Continue to utilize the design review process and Historic Preservation Ordinance to ensure preservation of significant cultural resources.

IM LU-12.c: Continue to allow owners of designated historic landmarks to participate in the Mills Act.

IM LU-12.d: Update Historic Resources Inventory and Landmark List and publish on the City Website information regarding incentives for preservation of heritage properties.

Policy LU-17.1: The physical form and scale of The Village is connected with its rural origin capturing the charm of its 19th century roots. The City shall ensure that the integrity and character of Saratoga Village continues to reflect this familiar identity and retain the quaint qualities that have characterized its architectural form over the years.

Open Space and Conservation Element

Policy OSC-15.1: Support activities and events that highlight Saratoga's rich history, such as the "Valley of the Heart's Delight" and the annual Blossom Festival events at the Central Park or Heritage Orchard.

IM OSC-15.a: Periodically update the Heritage Resource Inventory and Designated Landmark Structures list, and publish on the City Website information regarding incentives for preservation of heritage properties, such as the Mills Act Program.

3. Impacts and Mitigation Measures

This section analyzes and describes potential environmental impacts related to cultural and tribal cultural resources that could result from the implementation of the goals and policies set forward in the project, as well as reasonably foreseeable development expected to occur under the project's implementation.

a. Significance Criteria

The project would have a significant impact on cultural resources if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
3. Disturb any human remains, including those interred outside of formal cemeteries.

The project would have a significant impact on tribal cultural resources if it would:

4. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: (i) Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

A discussion of these criteria is included in the impact analysis below. If an impact on a historical, archaeological, or tribal cultural resource is significant, CEQA requires feasible measures to minimize the impact.⁶⁴ Mitigation of significant impacts under the criteria listed above must lessen or eliminate the physical impact that the project would have on the resource.

b. Analysis and Findings

According to files maintained by the NWIC and the City of Saratoga, there are 130 cultural resources that have been identified within the city of Saratoga. These include four prehistoric archaeological sites, one historic archaeological site, one multi-component archaeological site

⁶⁴ California Code of Regulations, Title 14 Section 15126.4 (a)(1).

that includes both historic and prehistoric archaeological material, 117 historic buildings, three objects, one historic landscape, two heritage lanes, and a historic cemetery. The identified archeological sites are described in Table IV.D-6.

TABLE IV.D-6 ARCHAEOLOGICAL RESOURCES LOCATED WITHIN THE CITY OF SARATOGA

Primary #	Trinomial	Type	Description
P-43-000082	CA-SCL-65	Prehistoric Site	Habitation (midden) site
P-43-000084	CA-SCL-67	Prehistoric Site	Habitation (midden) site
P-43-000231	CA-SCL-221	Multi-component Site	Historic refuse scatter associated with the “Painless Parker” homestead, and one human bone
P-43-000373	CA-SCL-327	Prehistoric Site	Bedrock mortar site
P-43-000374	CA-SCL-368H	Historic Site	Pacific Congress Springs
P-43-000428	CA-SCL-425	Prehistoric Site	Midden deposit with fire-affected rock, chipped stone

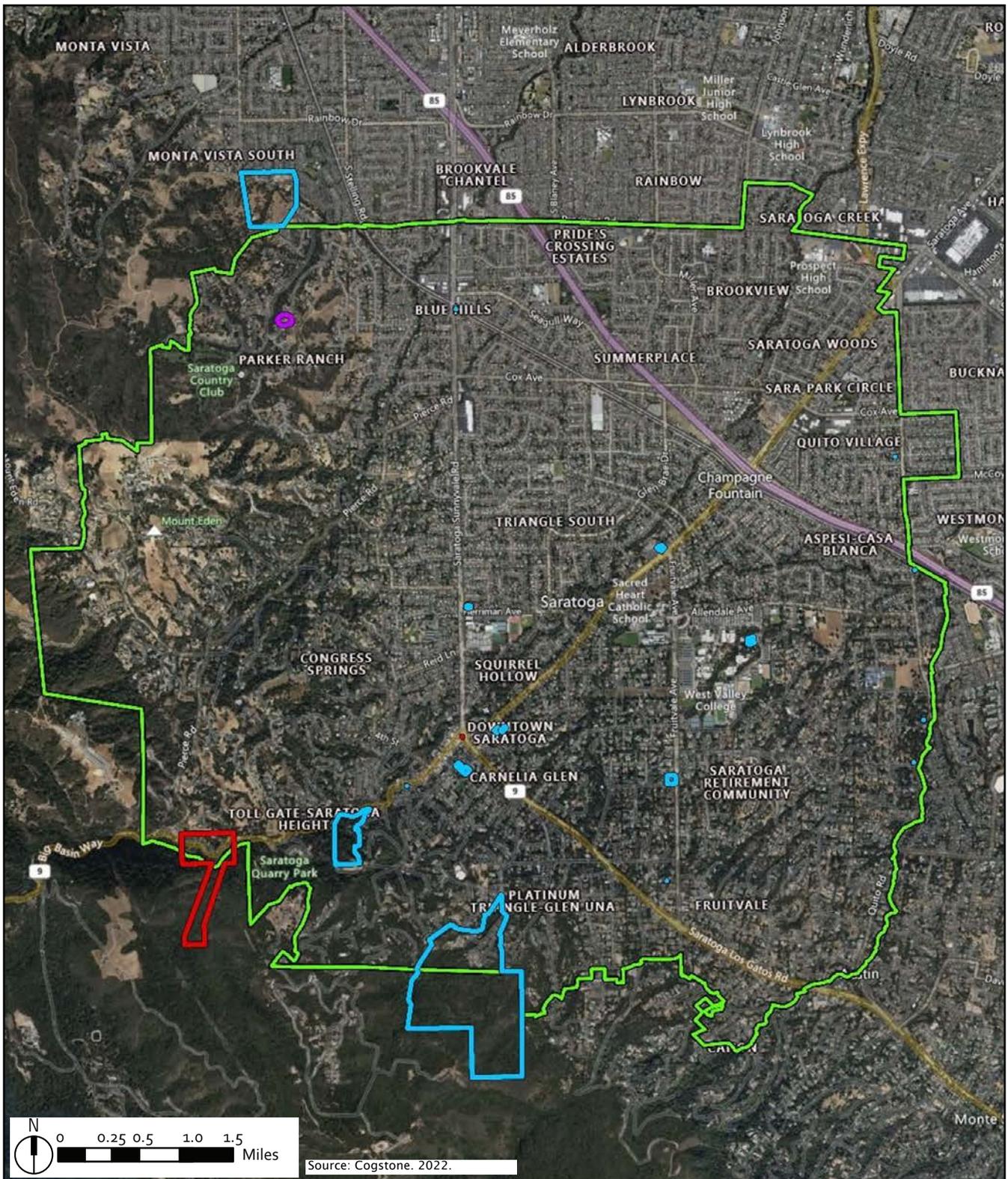
Source: Results of NWIC cultural records search.

Currently, the City of Saratoga has 128 listed historic buildings in the June 2022 City of Saratoga Heritage Resource Inventory. Of these, 25 are listed in the City of Saratoga’s October 2020 list of Designated Landmark Structures (one additional designated landmark is outside the city’s limits), eight are listed on the NRHP and the CRHR, two are California State Historical Landmarks, and one is listed as California Points of Historical Interest. Of the 25 Designated Landmark Structures, nine are Mills Act properties and three are also listed on the NRHP and CRHR.

(1) Historical Resources (Criterion 1)

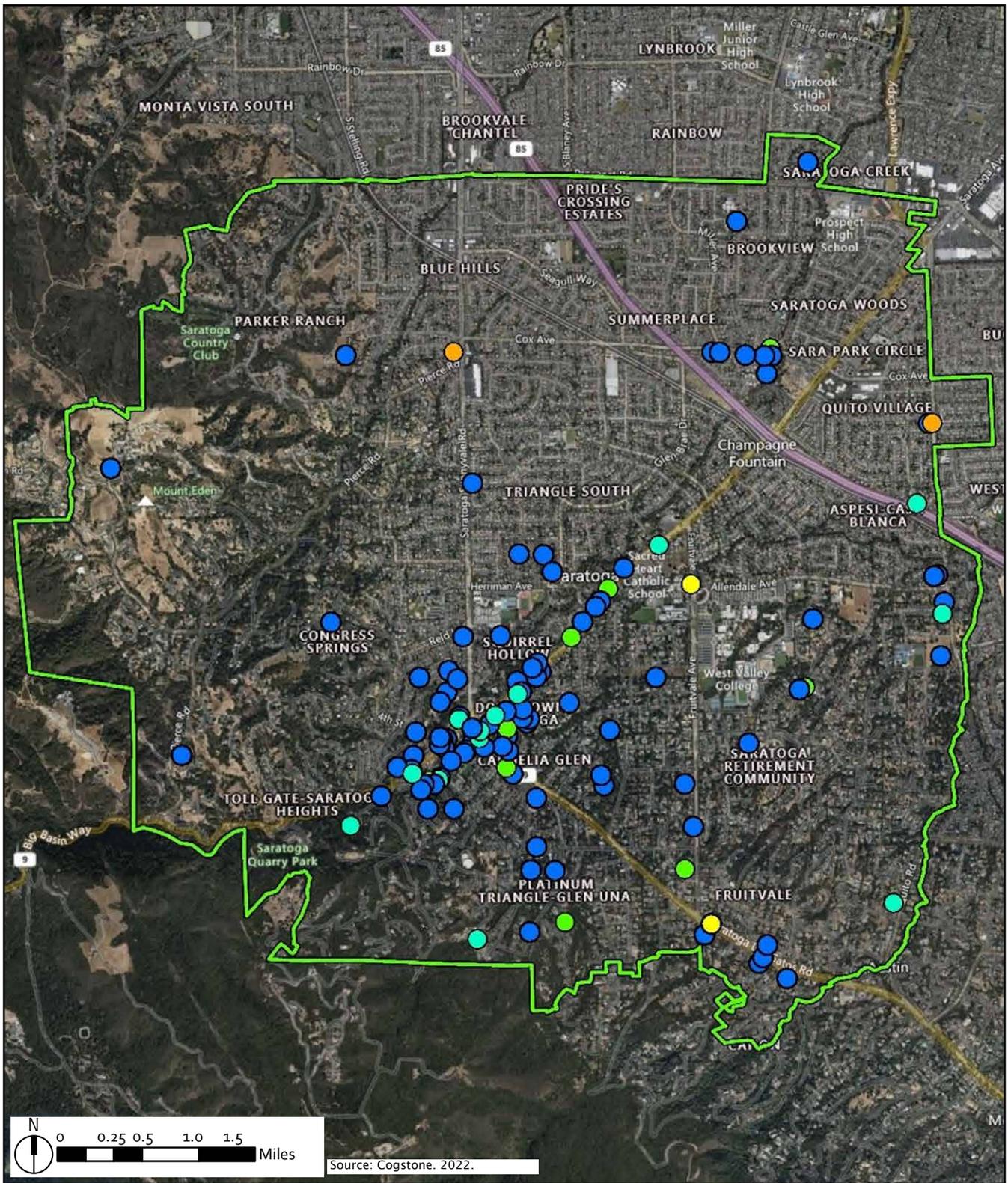
Three resources are reported by NWIC to have a historic archaeological component. These consist of the Pacific Congress Springs Hotel remains at the southwest edge of the city, the historic component of the Farr Ranch in the Blue Hills near the northwest corner of the city, and the Saratoga Landmark located on the southeast corner of Highway 9 and Highway 85 which could be better described as a historic built environment resource (Figure IV.D-3).

The locations of all historic built environment resources that have been determined to be significant at the national or local level in the city are shown in Figure IV.D-4. These significant historic built environment sites cluster along Saratoga Creek in the southern portion of the city and to a decreasing extent throughout the southeastern quarter of the city, and along Saratoga Creek north of California State Route 85. One locally significant resource, the Bellicitti Ranch constructed c. 1870 in the Pioneer style, located at 18500 Marshall Lane, is located within a portion of an approved pipeline project (Marshall Lane Subdivision) which has undergone a separate CEQA analysis in 2021. A Mitigated Negative Declaration (MND) for the Marshall Lane Subdivision was adopted by Saratoga City Council on October 6, 2021.



- ▭ Historic Archeological Site
- ▭ Historic Build Environment Resource
- Multi-Component Site (Hist/Pre)
- ▭ Project Area

Figure IV.D-3
Historic-Aged Resources



- Saratoga IIRI - Status**
- Local
 - Designated Historic Landmark
 - Designated Historic Landmark/Mill's Act
 - Designated Historic Landmark/NRHP Listed
 - NRHP Listed
 - Project Area

Figure IV.D-4

Historic Resource Inventory

The general locations of these historic buildings can also be used to define the oldest areas of historic-aged occupation in the city. Historic-aged archaeological features such as trash pits and foundations co-occur with these notable historic-aged buildings and nearby similarly aged buildings that have been redeveloped. Areas close to now historic-aged archaeological sites and near Saratoga Creek in the southern part of the city are assigned moderate to high sensitivity for buried historic-aged archaeological deposits and other areas near identified historic-aged buildings are assessed to have moderate sensitivity for the same.

Two historic built environment resources may be affected by changes to the potential housing sites. The National Register-listed Villa Montalvo (N598) is adjacent to or slightly overlaps proposed Housing Sites 58, 59, 60. The locally significant, Bellicitti Ranch, constructed c. 1870 in the Pioneer style, located at 18500 Marshall Lane, is within a portion of an approved pipeline project (Marshall Lane Subdivision).

A substantial adverse change in the significance of a historic resource is defined in Section 15064.5(b)(1) of the CEQA Guidelines as the “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.” Known historic and prehistoric resource sites are located throughout Saratoga, and it is expected that additional undiscovered sites may be located in various areas of the city as well. Based on a review of information available at the NWIC, it is estimated that, to date, approximately 25 percent of the land within the city of Saratoga has been surveyed for archaeological resources.

While the project does not directly propose any adverse changes to any archeological, historic, or tribal cultural resources, future development under the project could affect known historical and archaeological resources or previously unidentified historical and archaeological resources, including tribal cultural resources.

Impact CULT-1: Construction of residential development under the project has the potential to adversely affect historic archaeological resources. (S)

The potential for additional archaeological sites to be present within the city of Saratoga exists but varies by location. Prehistoric habitation sites, such as those known to be present within the city of Saratoga, tend to be situated along creeks and in other areas with a reliable water supply, whereas task-specific sites, or resource procurement sites can be situated in almost any environment conducive to human activity. Buried prehistoric archaeological sites tend to be found on Holocene-age landforms, particularly alluvial fans, floodplains, and areas along rivers and streams. As such, within the city of Saratoga, the land along Saratoga and Calabazas creeks has the greatest potential for buried prehistoric archaeological resources to be present.

As future development projects are considered by the City, each project will be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable state and local regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. The project includes goals and policies that would reduce impacts on cultural, historic, and archaeological resources, as well as policies for the conservation of cultural, historic, and archaeological resources. Goal LU 12 recognizes the value of historic and cultural resources in the city of Saratoga and seeks to protect historic and cultural resources, where feasible. Policies LU 12.1, LU 12.7, LU 12.8, and LU 12.9 ensure the protection and preservation of cultural and historical resources within the city of Saratoga by encouraging compatibility of architectural styles with established traditions, by requiring project review by the Heritage Preservation Commission and the Planning Commission when appropriate, and by requiring evaluation of potential resources, both in the city limits and within the sphere of influence, in accordance with CEQA.

Implementation of these policies and the following mitigation measure would ensure that adverse effects on historical resources are reduced to a less-than-significant level.

Mitigation Measure CULT-1: Accidental Discovery of Cultural Resources. If cultural material is discovered during ground-disturbing activities, all work must halt within 50 feet of the find until the qualified archaeologist can determine the significance. No soil shall be exported from within the 50-foot buffer around the find until a determination of significance is made. The qualified archaeologist will then also determine if continued archaeological monitoring, testing, or data recovery is warranted. (LTS)

(2) Archaeological Resources and Human Remains (Criteria 2 and 3)

Prehistoric site locations are confidential to protect them from vandalism and do not appear on maps. Based on NWIC data approximately 25 percent of the City of Saratoga has been surveyed to date. All known sites were mapped to help establish sensitivity rankings as the potential for previously unidentified resources is highly variable based on location within the city. There are four currently known prehistoric archaeological habitation sites within the city and an additional multi-component resource that has a prehistoric habitation component. Of these five resources with prehistoric components, three are located along Saratoga Creek. The others are located in the Blue Hills near the northwest corner of the city and near the middle of the eastern edge of the city near San Tomas Aquinas Creek. This is consistent with general patterns in which resources are located proximate to important resources, especially permanent water courses in other dry or seasonally dry areas. As such, buried prehistoric sites tend to be found proximate to rivers, streams, or other water courses, especially in floodplains or alluvial fans of that date to the Holocene. Erosion and deposition cycles within younger Holocene deposits, especially alluvium mean that many of these deposits have some potential for containing buried prehistoric cultural sites. Alternatively, most Pleistocene-age (1.8 million years to 11,800 calibrated years before the

present) represent sites of long-term erosion that would have likely scoured away any archaeological deposits. The likelihood that potential deposits have been lost increases with the age of the sediments. The processes apply similarly to human burials as to other remains. Based on Helley et al's⁶⁵ geological map of the Santa Clara Valley, upper elevations consist of Pliocene and Pleistocene age Santa Clara Formation (geologic unit: QTsc) and Pliocene and older undifferentiated bedrock (geologic unit: br) while sediments in most lower lying areas consist of Pleistocene age alluvial fan deposits (geologic unit: Qpaf) with the exception of Holocene alluvial fan deposits (geologic unit: Qhaf) along Saratoga and Calabasas Creeks.

Impact CULT-2: Construction of development under the project has the potential to result in disturbance of sensitive archaeological sites and human remains, including those interred outside of formal cemeteries. (S)

Known archaeological sites are assessed to have the highest sensitivity with areas within 200 meters of any waterway considered moderately to highly sensitive (Appendix C-6, Figures C-6.1 to C-6.11). Areas with Holocene aged surficial alluvial deposits with less than 15 percent slope are considered moderately sensitive. Pleistocene aged surficial deposits with 15 to 30 percent slope are considered to have low to moderate sensitivity, with sensitivity generally decreasing with increasing age. Any geological formations older than Pleistocene, with over 30 percent slope, are considered to have low sensitivity for buried prehistoric cultural deposits. Generally, prehistoric sites are considered to be significant or not based on the presence or absence of intact buried deposits; some significant resources, notably rock art sites, can be significant without the presence of buried cultural deposits.

One resource, P-43-000428, a midden deposit site with fire-affected rock, small amounts of lithics, and one bowl mortar is located within an approved pipeline project (Marshall Lane Subdivision) which has already undergone a separate CEQA analysis. This resource has not been evaluated for listing in the CRHR or NRHP.

No information has been found that provides additional cultural sensitivity information specifically related to human remains, including human remains that may be interred outside of formal cemeteries. As such, the areas that are sensitive for human remains coincide with the areas that are sensitive for prehistoric or historic archaeological sites.

Excavation and construction activities under the project may yield human remains that may not be marked in formal burial locations. Therefore, as future development projects are reviewed by the City, each project will be evaluated for conformance with the City's General Plan, Municipal

⁶⁵ Helley, E.J., R.W. Graymer, G.A. Phelps, P.K. Showalter, and C.M. Wentworth, 1994. Preliminary Quaternary Geologic Maps of Santa Clara Valley, Santa Clara, Alameda, and San Mateo Counties, California: A Digital Database. Geological Survey Open-File Report 94-231.

Code, and other applicable state and local regulations. Under CEQA, human remains are protected under the definition of archaeological materials as being “any evidence of human activity.”

Public Resources Code Section 5097 has specific stop-work and notification procedures to follow in the event that Native American human remains are inadvertently discovered during excavation and construction activities. This requirement applies to all construction projects within the city of Saratoga. No known human burial sites are located in areas to be impacted by the project. However, implementation of the following Mitigation Measure CULT-2 would address the unexpected presence of unidentified subsurface resources or remains.

Mitigation Measure CULT-2: Archaeological and Human Remains Construction Protocols.

The following mitigation measures shall be included as standard conditions of approval for development under the project to avoid potentially disturbing sensitive archaeological sites and human remains.

CULT-2a: Cultural Sensitivity Training. Prior to the beginning of ground disturbance, a qualified archaeologist shall be retained to develop and deliver a short training presentation that describes what cultural resources may be uncovered during the ground-disturbing phases of the project and actions to take in case of a find. All workers involved in ground-disturbing activities and their direct supervisors must receive this training prior to working on the project.

CULT-2b: Accidental Discovery of Archaeological Resources. If potential archaeological material is discovered during ground-disturbing activities on proposed housing sites, all work must halt within 50 feet of the find until the qualified archaeologist can determine the significance. No soil shall be exported from within the 50-foot buffer around the find until a determination of significance is made. The qualified archaeologist will then also determine if continued archaeological monitoring, testing, or data recovery is warranted. If an archaeological resource is determined to be of Native American origin, the Tamien Nation tribal chairperson will be notified, and the Tribe invited to comment on the find. The Tribe may request additional consultation at that time.

CULT-2c: Halt Construction Activity, Evaluate Find, and Implement Mitigation. In the event that any previously unidentified cultural resource (historic/archaeological/tribal cultural resources) is uncovered during site preparation, excavation, or other construction activity, all such activity shall cease until these resources have been evaluated by a qualified archaeologist and specific measures can be implemented to protect these resources in accordance with Sections 21083.2 and 21084.1 of the California Public Resources Code.

CULT-2d: Halt Construction Activity, Evaluate Remains, and Take Appropriate Action in Coordination with Native American Heritage Commission. In the event that potential human remains are uncovered during site preparation, excavation, or other construction activity, all such activity shall cease until the remains have been evaluated by the County Coroner within two working days, in accordance with Section 7050.5 of the California Health and Safety Code. If the Coroner determines that the remains are Native American they will contact the Native American Heritage Commission (NAHC) within 24 hours, in accordance with Section 5097.98 of the California Public Resources Code. (LTS)

Implementation of Mitigation Measures CULT-2 would reduce the impacts associated with possible disturbance of unidentified historic resources, archaeological resources, or human remains at proposed housing sites to a less-than-significant level.

(3) Tribal Cultural Resources (Criterion 4)

As described above, a search of the Sacred Lands File (SLF) for the city by the NAHC completed on July 5, 2022, indicated that there are no sacred lands known to the NAHC within the city of Saratoga. The SLF is a living database with new sacred lands constantly being added. For this reason, new searches of the SLF shall be completed on a project-by-project basis.

Consistent with the requirements AB 52 and SB 18, the City of Saratoga completed Native American consultation. The two responses to notification letters are summarized below (Appendix C-5, Table C-5.1).

On September 30, 2022, Amah Mutsun Tribal Band of Mission San Juan Bautista Chairperson Irenne Zwierlein requested cultural sensitivity training for construction personnel prior to ground disturbance during a follow-up telephone call. Chairperson Zwierlein further said “you know what to do” if a resource is found. In context this statement is interpreted as a request for notification and possible additional consultation with the Tribe if a Native American resource is found.

On September 30, 2022, Rumsen Am:a Tur:ataj Ohlone Chairperson Dee Ybarra indicated that the project was out of their tribal territory and that they do not comment on other tribal territories unless asked to participate [by resident groups]. Full comment is in Appendix C-5.

On September 30, 2022, Tamien Nation Chairwoman Quirina Geary requested formal consultation under SB 18 and the City sent their current general plan, the proposed changes, and the standard mitigation measures for Tribal Cultural Resources. On November 1, 2022, a teleconference meeting was held with the Chairwoman Geary. She requested a review of the EIR prepared for the Marshall Lane Subdivision project and review of proposed Cultural and Tribal Cultural Resources mitigation measures in this Draft EIR.

Impact CULT-3: Construction of development under the project has the potential to impact unidentified tribal cultural resources. (S)

Based on information provided in consultation with tribes, no known tribal cultural resources would be affected on the proposed housing sites (aside from the approved pipeline project Marshall Lane Subdivision which has already undergone a separate CEQA review process); however, this does not eliminate the potential for the discovery of previously unknown tribal cultural resources during individual project construction. Thus, the potential for discovery of previously unidentified tribal cultural resources associated with future development could occur. These future developments would be subject to applicable General Plan Policy LU 12.9 which requires the City to protect significant archaeological, prehistoric, and paleontological Native American resources as required by CEQA. Adherence to this policy would ensure that future development and implementation of the project would result in less-than-significant impacts related to archaeological resources. Furthermore, in the event that future development projects encounter human remains, in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the NAHC by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. While no known tribal cultural resources have been identified within the proposed housing sites, the following mitigation measure is proposed to address the possible presence of previously unidentified tribal cultural resources.

Mitigation Measure CULT-3: Implement Mitigation Measures CULT-2. (LTS)

Adherence with these State and local policies and implementation of Mitigation Measure CULT-3 would reduce the impacts associated with possible disturbance of unidentified tribal cultural resources within the proposed housing sites to a less-than-significant level.

c. Cumulative Cultural and Tribal Cultural Resources Impacts

This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development in areas surrounding the planning area, including the El Paseo and 1777 Saratoga Ave Mixed Use Village and Costco Westgate cumulative projects, would result in a cumulatively significant impact with respect to cultural and tribal cultural resources. The geographic area of concern for cumulative cultural and tribal cultural resources impacts is the city. The intensification of land uses caused by future development under the project together with other development projects in the area could result in the increased potential impact and

discovery of both identified and unidentified cultural, archeological, and tribal cultural resources, and thereby create a cumulative effect on these resources. However, as described above, future development would be subject to applicable federal, state, and local policies such as Policies LU 12.1, LU 12.7, LU 12.8, and LU 12.9, to ensure the protection and preservation of cultural and historical resources within the city of Saratoga by encouraging compatibility of architectural styles with established traditions, by requiring project review by the Heritage Preservation Commission and the Planning Commission when appropriate, and by requiring evaluation of potential resources, both in the city limits and within the sphere of influence, in accordance with Chapter 13 of the Saratoga Municipal Code.

(1) Cumulative Effects on Archaeological Resources

There are no prehistoric-aged or historic-aged archeological sites that are listed, or determined eligible for, listing in the NRHP within the city of Saratoga. Application of applicable federal, state, and local policies and implementation of Mitigation Measure CULT-1 will reduce the potential impacts to previously unidentified historical archaeological resources, including those associated with built environment resources, to less than significant. Application of applicable federal, state, and local policies and implementation of mitigation measure Cult-2 will reduce potential impacts to previously unidentified prehistoric archaeological resources and human remains, including those interred outside formal cemeteries, to less than significant.

(2) Cumulative Effects on Tribal Cultural Resources

There are currently no known tribal cultural resources within the city of Saratoga that may be affected by development (aside from the approved pipeline project Marshall Lane Subdivision which has already undergone a separate CEQA review process). Application of applicable federal, state, and local policies and implementation of Mitigation Measures CULT-2 and CULT-3 will reduce potential impacts to previously unidentified tribal cultural resources to less than significant.

(3) Cumulative Effects on Built Environment Resources

Application of applicable federal, state, and local policies including policy LU12.5 that requires updating of the City's Historic Resources Inventory when implemented to evaluate built environment resources 45 years of age and older for eligibility for listing in the NRHP will reduce potential impacts to built environment resources to less than significant.

E. GEOLOGY AND SOILS

This section describes the current geologic and seismic conditions in the planning area and its vicinity and analyzes how implementation of the project and its associated development may affect these conditions.

1. Setting

This section describes the geologic and seismic environment of the planning area based on published geologic reports and maps from the U.S. Geological Survey (USGS), California Geological Survey (CGS), and other sources. Regulations and policies relevant to geology and soils are also presented.

a. Geologic Conditions

The geology, topography, and groundwater conditions for the planning area are described below.

(1) Geology and Topography

The planning area is located within the Coast Ranges geomorphic province, a relatively geologically young and seismically active region.^{1,2} The Coast Ranges are mountain ranges (ranging in elevation from 2,000 to 6,000 feet above sea level) and valleys that trend northwest, approximately parallel to the San Andreas fault, from near the Oregon border to southern California. The only major break in the Coast Ranges is the depression containing San Francisco Bay Area (Bay Area) within which the planning area is located.

The planning area is located along the west side of the Santa Clara Valley, which is situated at the southern end of the Bay Area. The valley is characterized as a depression that has been subsiding and filling with sediment during the Quaternary Period.³ Deposition of alluvial⁴ and fluvial⁵ sediments during this time has been influenced by both subsidence and the climatic and base level changes associated with past glaciations and sea level fluctuations. Research conducted within the Bay Area indicates that the valley floor within the San Jose region is blanketed by young alluvial deposits since the last ice age. Older alluvial deposits⁶ underlie these sediments and crop out along the margins of the valley.⁷

¹ California Geological Survey (CGS), 2002a. California Geomorphic Provinces, Note 36.

² Norris, Robert M. and Robert W. Webb, 1976. Geology of California, 2nd Edition. J. Wiley & Sons, Inc.

³ Quaternary Period is the time period from 2.6 million years ago to present day.

⁴ Unconsolidated sediment deposited by a stream.

⁵ Produced by the action of a stream or river.

⁶ Deposits placed during the Pleistocene epoch (1.8 million years ago to 11,000 years ago).

⁷ City of Saratoga, 2013. General Plan, 2013 Safety Element, Final Adopted Draft, February.

The city, as mapped by the CGS,⁸ is primarily underlain by alluvium and older alluvium, with some sandstone within the southeast portion of the city; and sandstone, Franciscan Complex, and volcanic bedrock in the hillside areas in the western and southern portions of the city and planning area (see Figure IV.E-1).

The topography of the planning area includes the low-lying relatively flat valley floor and the northwestern foothills of the Santa Cruz Mountains in the western and southern portions of the planning area. Outside the city limits, but within city's Sphere of Influence in the southwest portion of the planning area, are the Castle Rock portions of the Santa Cruz Mountains. These mountains are very rugged, comprised of steep canyons and sharp to rounded ridge tops.⁹

(2) Groundwater

The planning area is located within the Santa Clara Groundwater Subbasin which is part of the Santa Clara Valley Groundwater Basin. Based on mapping of the generalized depth to first groundwater,¹⁰ the area of the city with the shallowest groundwater (depths ranging from 0 to 10 feet) is located in the east-central portion of the city near the area where Saratoga Creek and Wildcat Creek are closest to each other. The depth to first groundwater in the city generally increases with distance away from this area and generally ranges from 10 to 50 feet throughout much of the city, with slightly shallower depths (10 to 20 feet) extending into the west-central portion of the city. The depth to first groundwater is deepest in the southeast portion of the city where it ranges from 50 to over 100 feet.¹¹ The depth to groundwater can vary depending on factors such as proximity to creeks/surface water, seasonal rainfall, irrigation, groundwater extraction, leaking utilities, and subsurface conditions (e.g., clay layers that can cause perched groundwater or fault zones that can act as barriers to groundwater flow).

b. Seismic Conditions and Geologic Hazards

(1) Faults

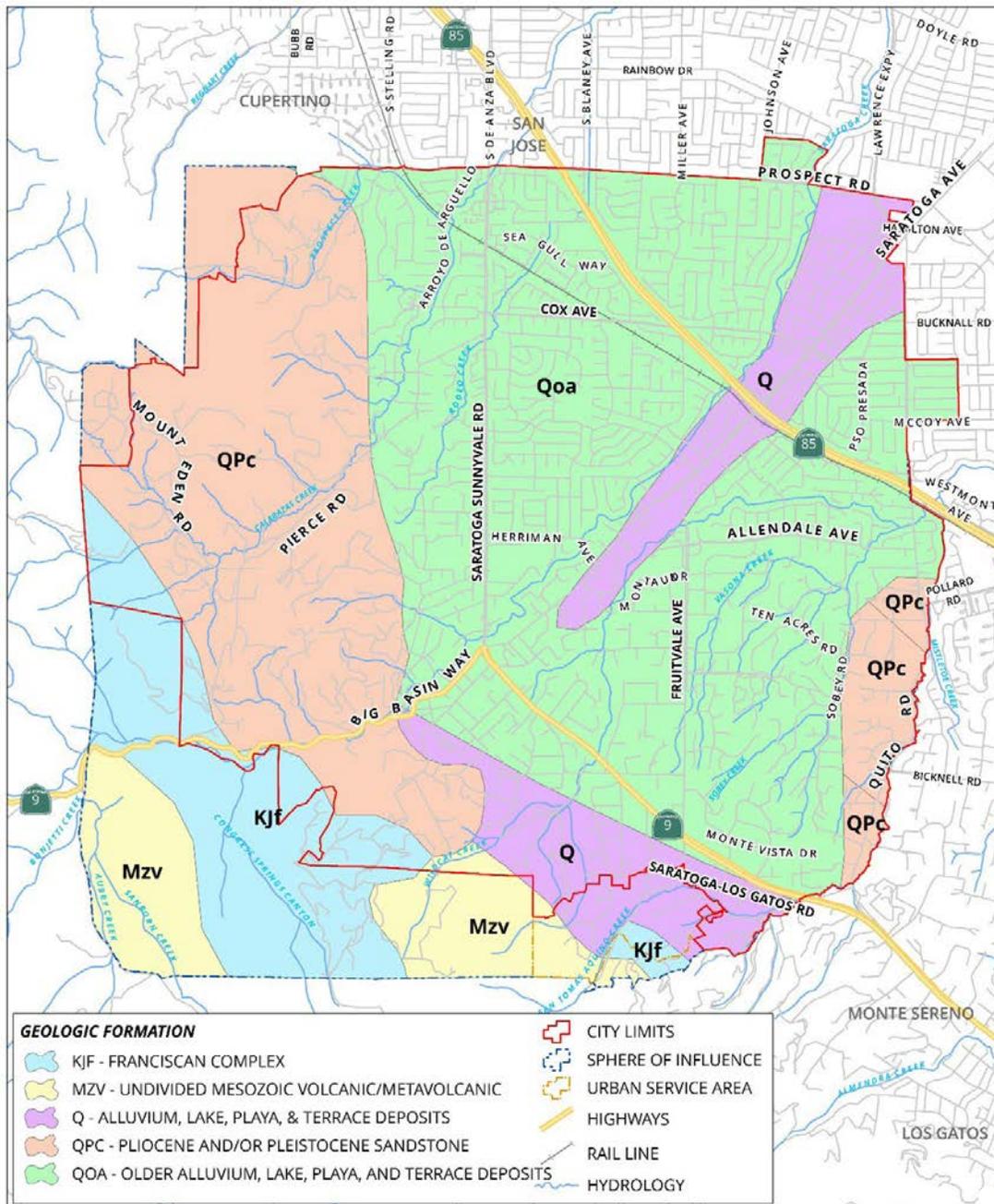
The entire Bay Area is located within the San Andreas Fault Zone, a complex of active faults. Numerous historic earthquakes have been generated in northern California on faults within the

⁸ California Geological Survey (CGS), 2022a. Geologic Map of California, Geologic Data Map No. 2, Compilation and Interpretation by: Charles W. Jennings (1977). Available at: <https://maps.conservation.ca.gov/cgs/gmc/App/>, accessed July 26, 2022.

⁹ City of Saratoga, 2013. General Plan, 2013 Safety Element, Final Adopted Draft, February.

¹⁰ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

¹¹ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.



Miles Source: City of Saratoga; Santa Clara County; CA Geological Survey 2000; M-Group 2018

Figure IV.E-1
CGS Geologic Map

San Andreas Fault Zone. This level of active seismicity results in relatively high seismic risk in the Bay Area.

The planning area, like much of the San Francisco Bay area, is vulnerable to seismic activity based on the presence of several active faults in the region. The most prominent active fault in the vicinity of the planning area is the San Andreas Fault, which crosses through the southwestern corner of the planning area as shown in Figure IV.E-2. An “active” fault is one that has experienced displacement within the last 11,000 years¹² and is expected to move again at some point in the future. A segment of the Monte Vista Fault located within the northwest portion of the city is also considered to be active, but with no historical record of fault displacement. Other active faults in the region include the Hayward Fault, approximately 8 miles to the east, the San Gregorio Fault, approximately 13 miles southwest, and the Calaveras Fault, approximately 15 miles to the east.¹³

The Berrocal Fault Zone, Monte Vista-Shannon Fault Zone, and Cascade Faults are also located within the planning area as shown in Figure IV.E-2 and are considered to be “potentially active.”¹⁴ A “potentially active” fault is one that has moved between 11,000 and 1.8 million years ago.¹⁵

The Cascade Fault traverses the northeastern corner of the planning area. The Berrocal Fault Zone, a complex system of interconnecting faults, crosses through the southeastern and western portions of the planning area. At least a half mile of the Berrocal Fault within the city displayed sympathetic ground cracking in response to the 1989 Loma Prieta earthquake. The Monte Vista-Shannon Fault system closely parallels the State Route 85 corridor from Regnart Creek (in Cupertino) in the north and continues to Almaden Expressway in the southeast portion of San Jose planning area.¹⁶

(1) Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture can generally be assumed to occur along an active or potentially active major fault trace. Areas that are most susceptible to fault rupture are delineated by the CGS Alquist-Priolo Zones and require specific geological investigations prior to development to

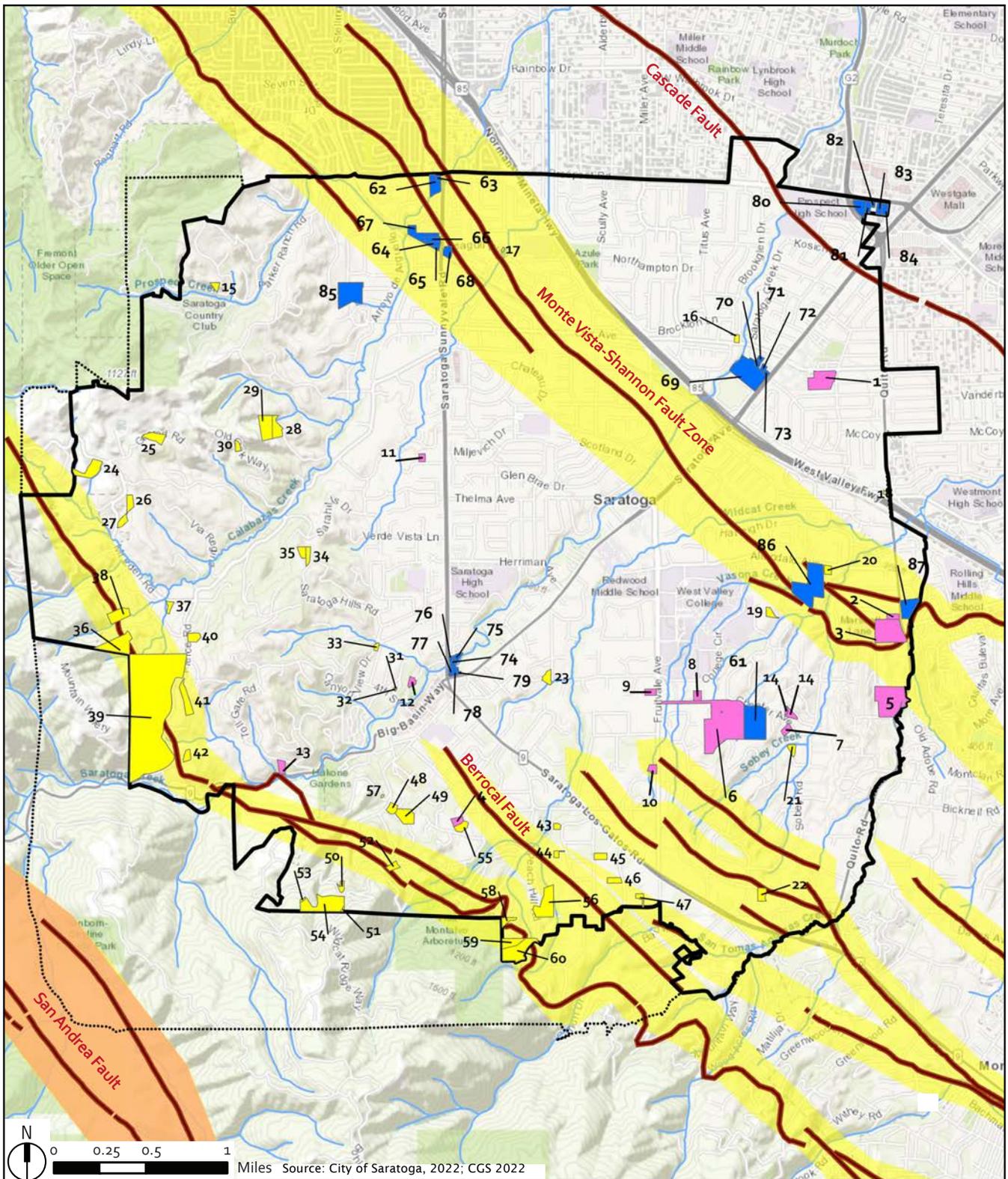
¹² California Geological Survey (CGS), 2003. Faults and Earthquakes in California, Note 31. Available at: <https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-31.pdf> accessed June 17, 2022.

¹³ California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California. Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed July 26, 2022.

¹⁴ California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California. Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed July 26, 2022.

¹⁵ California Geological Survey (CGS), 2003. Faults and Earthquakes in California, Note 31. Available at: <https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-31.pdf> accessed June 17, 2022.

¹⁶ City of Saratoga, 2013. General Plan, 2013 Safety Element, Final Adopted Draft, February.



- Saratoga City Limit
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Fault Traces
- Hydrology
- Alquist-Priolo Zone
- County Designated Fault Rupture Hazard Zones

Figure IV.E-2
 Fault Location and Earthquake Fault Zones

reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-induced ground failure. An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years. Wherever an active fault exists, if it has the potential for surface rupture, a structure for human occupancy cannot be placed over the fault and must be a minimum distance from the fault (generally fifty feet). Due to the recent activity of the San Andreas Fault, CGS has placed it within an Alquist-Priolo Zones as shown in Figure IV.E-2.¹⁷ There are no other faults in the planning area that are within an Alquist-Priolo Zone; however, the County of Santa Clara has designated areas surrounding fault traces within the Berrocal Fault Zone and Monte Vista-Shannon Fault Zone as being within County Geologic Hazard Zones as shown in Figure IV.E-2.¹⁸ Development on properties located within a County Geologic Hazard Zone may be required to submit special geologic studies. For the segments of these potentially active faults within the city, the City has the discretion to require studies deemed adequate by the City's Geologist, which may deviate from the County's requirements.¹⁹

None of the parcels listed in the Housing Sites Inventory are located within the Alquist-Priolo Zone for the San Andreas Fault. There are many parcels listed in the Housing Sites Inventory that are located within or intersected by the County Geologic Hazard Zones for the Berrocal Fault Zone or Monte Vista-Shannon Fault Zone, as shown in Figure IV.E-2.

A Ground Movement Potential Map²⁰ prepared for the City in 2013 identifies zones of potential primary surface fault rupture along the main traces of the Berrocal Fault, Monte Vista Fault, and Shannon Fault (Figure IV.E-3). The Ground Movement Potential Map does not include many of the fault traces for the Berrocal Fault Zone or Monte Vista-Shannon Fault Zone that are shown in mapping by CGS²¹ or the County Geologic Hazard Zones²² shown in Figure IV.E-2, and the locations of some fault traces on the Ground Movement Potential Map differ from the fault traces shown in CGS mapping and County Geologic Hazard Zones mapping; however, the Ground Movement Potential Map appears to be the most detailed mapping of the main traces of the Berrocal Fault, Monte Vista Fault, and Shannon Fault as the mapping is derived both from Geologic Maps of the city and from additional field observations and geologic experience in the Saratoga region. Alignment of the Berrocal Fault on the Ground Movement Potential Map

¹⁷ California Geological Survey (CGS), 2022b. Earthquake Zones of Required Investigation. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>, accessed July 26, 2022.

¹⁸ Santa Clara County, 2012, Geologic Hazard Zones, October 26. Available at: https://stgenpln.blob.core.windows.net/document/GEO_GeohazardATLAS.pdf, accessed July 26, 2022.

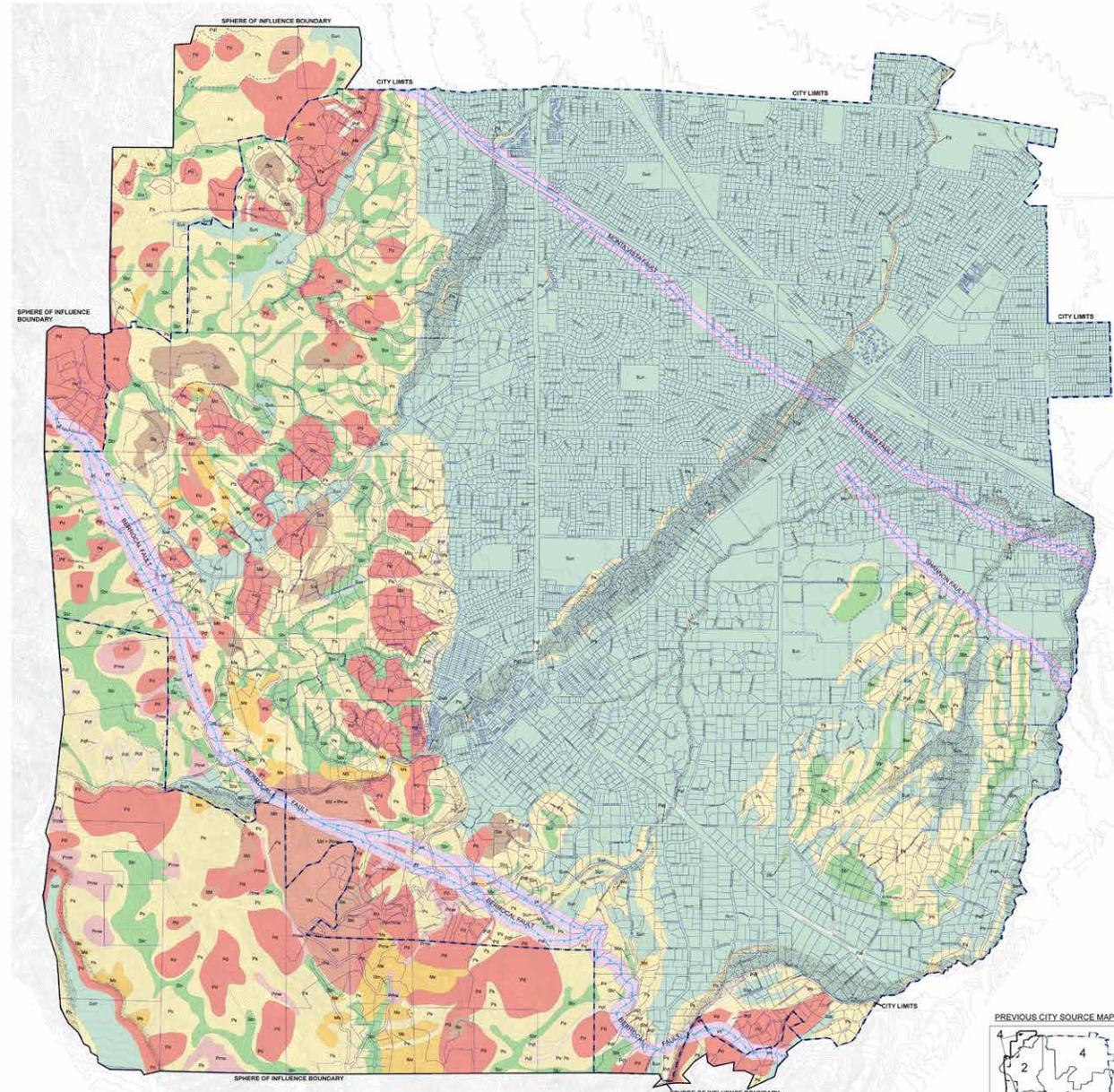
¹⁹ City of Saratoga, 2013. General Plan, 2013 Safety Element, Final Adopted Draft, February 20.

²⁰ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.

²¹ California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California. Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed July 26, 2022.

²² Santa Clara County, 2012, Geologic Hazard Zones, October 26. Available at: https://stgenpln.blob.core.windows.net/document/GEO_GeohazardATLAS.pdf, accessed July 26, 2022.

GROUND MOVEMENT POTENTIAL MAP CITY OF SARATOGA, CALIFORNIA

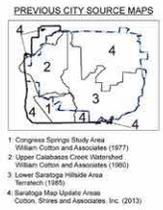


EXPLANATION	
Red	Low ground to moderate slope areas subject to failure with approximately three feet of ground surface movement for which there may be a risk to human safety, damage to infrastructure, and/or loss of life.
Orange	Intermediate slope for natural talus, steep wash, and rock soil on steep ground and gentle slopes, subject to sediment and/or erosion, including possible or actual flow during storm conditions.
Yellow	Steadily eroded ground subject to loss on gentle to moderate slope erosion subject to sediment and soil loss.
Green	Areas of very low ground potential, generally by residential and structured surface subject to erosion resulting from rain, changing, and flooding.
Blue	Areas of critical slope subject to erosion and/or landslides, generally on steeply sloping to steep ground and where displacement may not have an ongoing mechanism.
Red	Unstable, unconsolidated material commonly less than 10 feet in thickness, or gentle to moderate slope subject to failure resulting in erosion, settlement, and/or loss of life.
Orange	Unstable, unconsolidated material commonly from 10 feet to thickness, or moderate to steep slopes, subject to erosion.
Yellow	Stable to moderate quality young sediments including unconsolidated coarse sand and fine gravel. Consolidated loose to medium sand to silt/shale.
Blue	Zone of potential primary surface fault rupture.
Green	Highly permeable soils.
Orange	Unstable ground characterized by dense, shallow Active Compression Movement.
Yellow	Shallow water table, commonly less than 10 feet in thickness.
Blue	Shallow water table, commonly more than 10 feet in thickness.

NOTE TO USERS:

This is an interpretive map derived from the Geologic Maps of the City of Saratoga Region. It summarizes historical data and current geotechnical information for the City of Saratoga to assist in a variety of activities, including site specific geologic and geotechnical investigations necessary for construction. Mapping is done to assist in the development of a project and is not intended to be used as a basis for any project other than the natural stability of the ground.

This map is an update and expansion of the Active Compression Potential and Ground Water Potential maps prepared by Cotton, Shires and Associates, Inc. (CSA) and Cotton, Shires and Associates, Inc. (CSA) in 1995. The map is a result of the geologic and geotechnical investigations conducted by the City of Saratoga and Cotton, Shires and Associates, Inc. (CSA) in 1995. The map is a result of the geologic and geotechnical investigations conducted by the City of Saratoga and Cotton, Shires and Associates, Inc. (CSA) in 1995. The map is a result of the geologic and geotechnical investigations conducted by the City of Saratoga and Cotton, Shires and Associates, Inc. (CSA) in 1995.



COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

GROUND MOVEMENT POTENTIAL MAP
City of Saratoga, California

GEODESIGN BY JNP/J	SCALE AS SHOWN	PROJECT NO. G5042
APPROVED BY TS	DATE APRIL 2013	PLATE NO. 1 of 1



Figure IV.E-3
Ground Movement Potential Map

reflects results of site-specific fault investigations submitted to the City and cracking of ground observed after the Loma Prieta Earthquake in 1989.²³

(2) Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity (MMI) Scale is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table IV.E-1). The MMI values range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from VI to XII can cause slight to significant structural damage.²⁴

Mapping of earthquake shaking scenarios by the Association of Bay Area Governments (ABAG)²⁵ indicates that a large earthquake on the San Andreas Fault would produce the maximum ground shaking intensities in the planning area with violent shaking (MMI IX) in the western and southern portions of the planning area, and severe shaking (MMI VIII) in eastern and northern portions of the planning area. A large earthquake on the San Gregorio Fault would produce very strong shaking (MMI VII) across the planning area, and a large earthquake on the Hayward Fault or Calaveras Fault would produce strong shaking (MMI VI) across the planning area.

(1) Liquefaction, Lateral Spreading, and Seismic Settlement

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the groundwater table is located at greater depths. The potential for liquefaction-induced ground failure (e.g., loss of bearing strength, ground fissures, sand boils) depends on the thickness of the liquefiable soil layer relative to the thickness of the overlying non-liquefiable material. Areas near several creeks within the planning area have been mapped by CGS as liquefaction hazard zones,²⁶ as shown in Figure IV.E-4. Numerous parcels identified in the Housing Sites Inventory are located

²³ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.

²⁴ California Geological Survey (CGS), 2002b. How Earthquakes and Their Effects are Measured, Note 32.

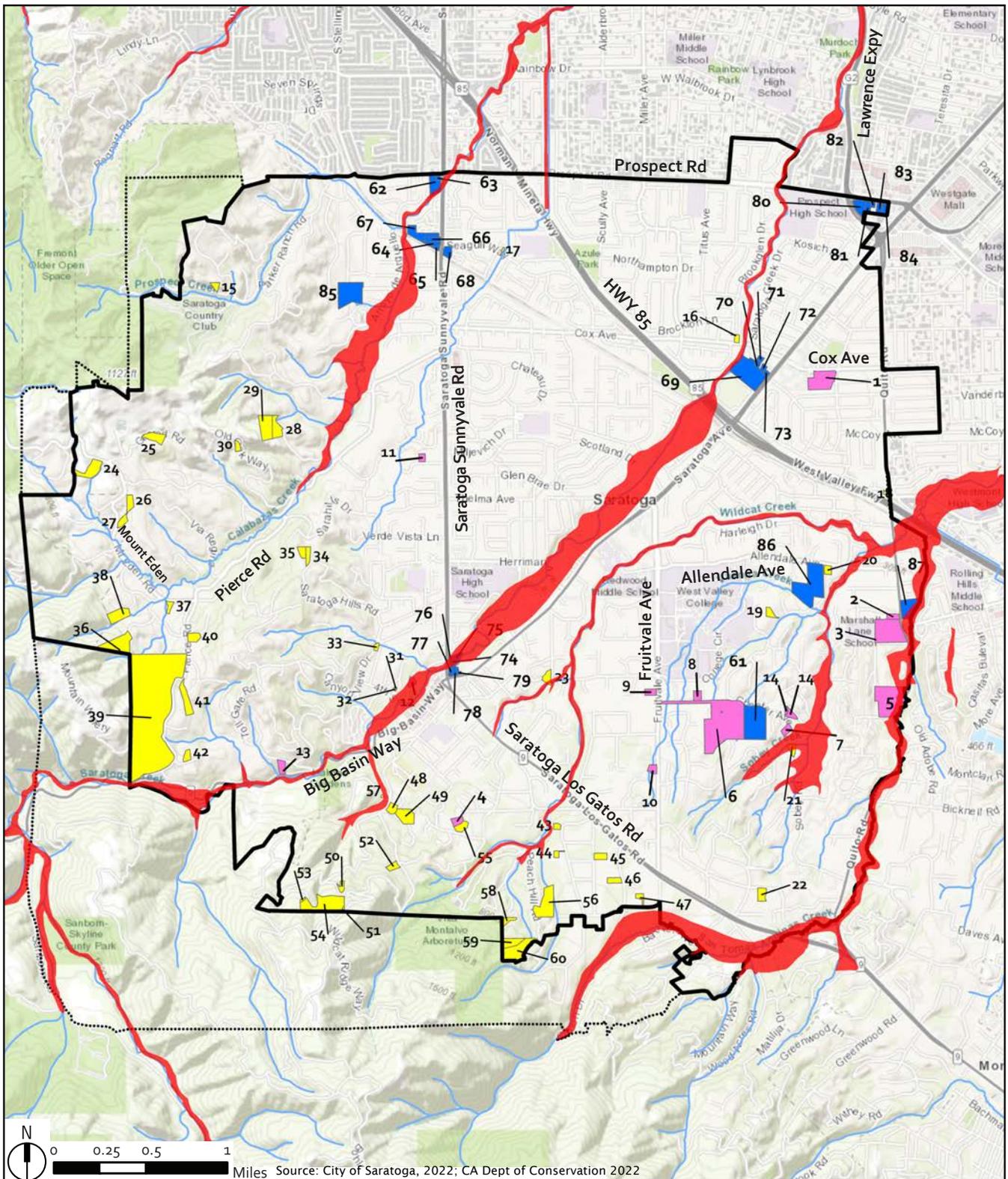
²⁵ Association of Bay Area Governments (ABAG), 2022. Hazard Viewer Map. Available at: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcdo86fc8>, Accessed August 1, 2022.

²⁶ California Geological Survey (CGS), 2022. Earthquake Zones of Required Investigation. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>, accessed July 26, 2022.

TABLE IV.E-1 MODIFIED MERCALLI INTENSITY (MMI) SCALE

MMI Value	Effects of Earthquake Intensity
I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geological Survey (CGS), 2002b. How Earthquakes and Their Effects are Measured, Note 32.



- Saratoga City Limit
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Hydrology
- Liquefaction Hazard Zone

Figure IV.E-4
Liquefaction Areas

within or intersected by liquefaction hazard zones, including Housing Sites 5, 12, 21, 23, 57, 62, 69, 74 through 78, and 87, as shown in Figure IV.E-4.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other “free” face, such as an embankment or excavation boundary. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface towards the free face. The lateral spreading hazard tends to mirror the liquefaction hazard for an area, assuming a free face is located nearby. Areas that may be susceptible to lateral spreading in the planning area include areas where liquefaction hazard zones are located near creeks, drainage channels, embankments, retaining walls, or other free faces.

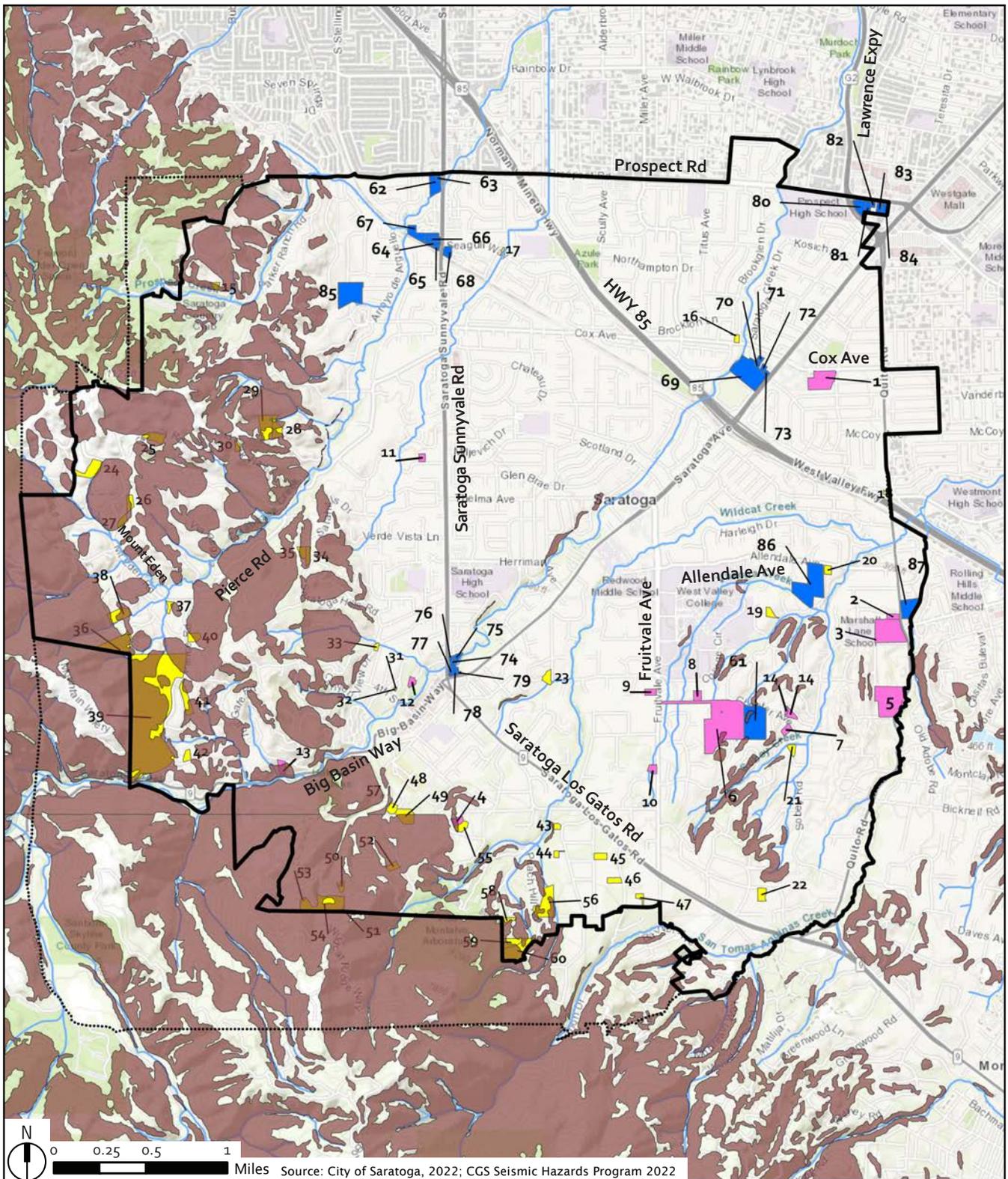
Seismic settlement (also referred to as cyclic densification or differential compaction) can occur when non-saturated, cohesionless sand, or gravel soil is densified by earthquake vibrations. When the degree of cyclic densification varies based on variations in soil types, differential (i.e., unequal) settlement may occur which can result in greater damage to improvements compared to relatively equal settlement. Loose unconsolidated soil that could be subject to seismic settlement can be present near creeks where soil has been deposited in a saturated environment, at the base of steep slopes where soil has been deposited by erosion, and in areas where fill materials have been placed without proper compaction.

(2) Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials. Landslides can be triggered by heavy rain and/or seismic activity. Much of the hillside areas in the western and southern portions of the planning area and some areas in the central and southeastern portions of the planning area have been mapped by CGS as seismically induced landslide hazard zones, as shown in Figure IV.E-5. Many of the parcels identified in the Housing Sites Inventory, including the majority of the vacant sites, are located within or intersected by landslide hazard zones, as shown in Figure IV.E-5.

The Ground Movement Potential Map²⁷ for the city provides additional details regarding the areas within the planning area that have significant potential for ground movement and unstable ground characterized by seasonally active downslope movement. There are several parcels identified in the Housing Sites Inventory that are intersected by areas of seasonally active shallow landslides (commonly less than 10 feet in thickness), including Housing Sites 13, 25, 41, 42, and 54 in Figure IV.E-5. There is also one parcel identified in the Housing Sites Inventory (Housing Site 53

²⁷ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.



- Saratoga City Limit
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Hydrology
- Landslide Hazard Zones

Figure IV.E-5
Earthquake Induced Landslide Zone

in Figure IV.E-5) that is located almost entirely within an area of seasonally active deep landslides (commonly more than 10 feet in thickness).

(3) Settlement, Differential Settlement, and Subsidence

Settlement is the lowering of the land surface elevation as a result of loading (i.e., placing heavy loads, typically fill or structures), which often occurs with the development of a site. Settlement or differential (i.e., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and/or new engineered fill or a boundary between bedrock and soil). Although settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Loose or uncontrolled (non-engineered) fill and variable soil conditions may be present in various areas of the planning area.

Subsidence is the lowering of the land-surface elevation. The mechanism for subsidence is generally related to groundwater pumping and subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems for which the flow is gravity driven. Minor subsidence and recovery due to seasonal variation in groundwater levels is considered elastic subsidence. Approximately 0.1 feet of historical land subsidence is estimated to have occurred in the planning area.²⁸

(4) Expansive Soils

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume. Shrink-swell potential is also influenced by the location of the soils; soils below the groundwater table maintain a steady moisture content and would therefore not be subject to shrink-swell effects. As a consequence of volume changes due to expansive soils, structural damage to buildings and infrastructure can occur if potentially expansive soils are not considered in project design and during construction. The shrink-swell potential of soil is low throughout much of the planning area, and moderate in much of the western portion of the planning area,²⁹ as shown in Figure IV.E-6. Many of the

²⁸ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

²⁹ Santa Clara County Planning Department, 2022. Soil of Santa Clara County. Available at: <https://sccplanning.maps.arcgis.com/apps/webappviewer/index.html?id=39cca200bb4743eeaa0e15838ab85d2>, accessed July 27, 2022.

parcels identified in the Housing Sites Inventory, including many of the vacant sites in the western portion of the planning area, are located within or intersected by areas of moderate shrink-swell potential, as shown in Figure IV.E-6.

c. Paleontological Resources

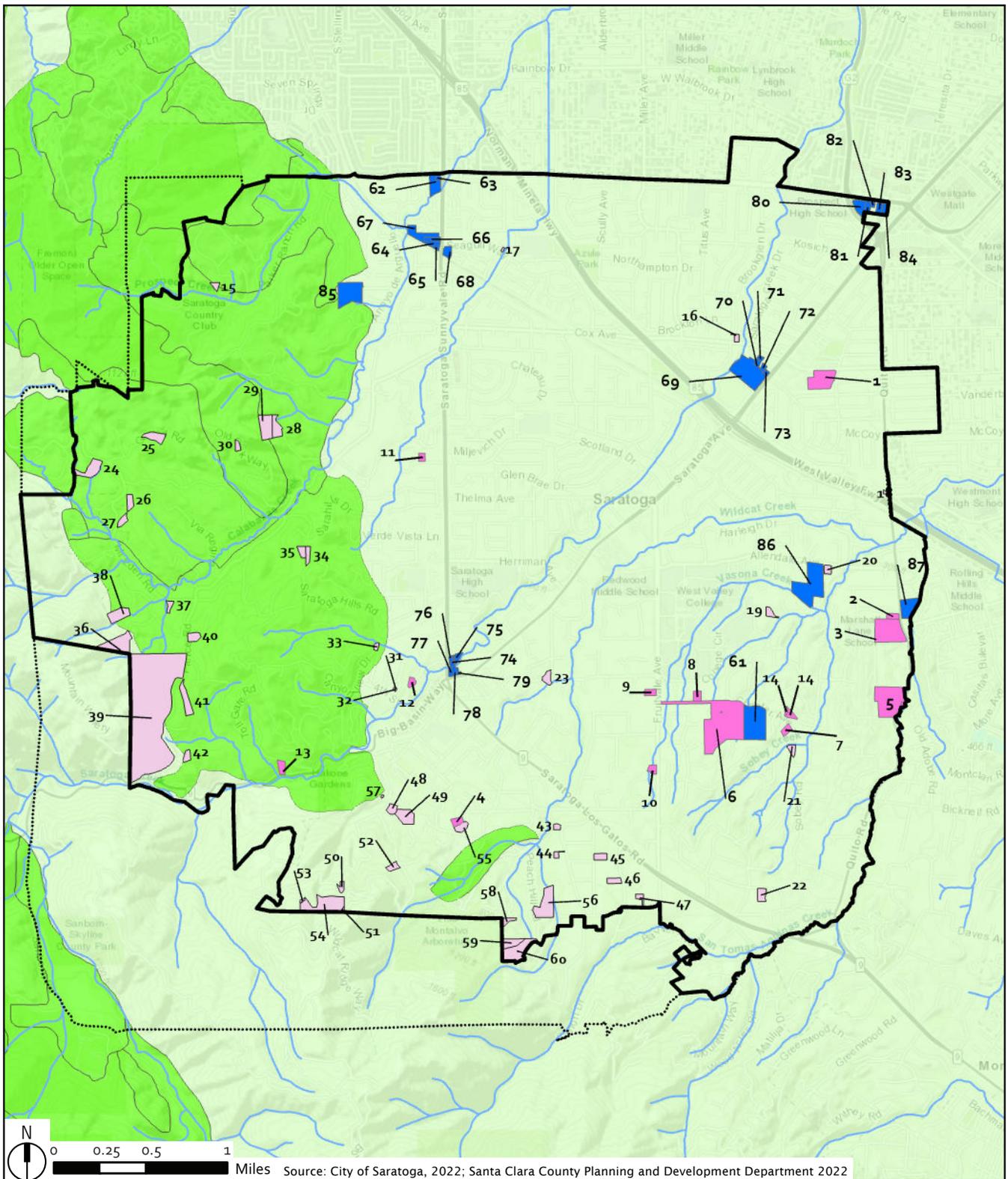
Paleontological resources include fossilized remains or traces of organisms, including plants, vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and microscopic plants and animals (microfossils), including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources as they represent a limited, non-renewable resource and once destroyed, cannot be replaced. The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on non-renewable paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, states that significant paleontological resources are fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 years).

A search of paleontological localities in the fossil collections database maintained by the University of California Museum of Paleontology identified many fossil localities within Santa Clara County including plants, invertebrates, vertebrates, and microfossils. The precise locations of the fossil localities are not provided in the database, and for many of the localities there is no information provided to infer even the general location within the County; however, based on the available information it appears that there are several localities potentially located within or near the planning area, including the following:³⁰

- A plant fossil locality identified as Calabazas Canyon of Pliocene age;
- An invertebrate locality identified as Los Gatos of recent Quaternary age;
- Three invertebrate localities identified as Regnart Road of Late Miocene age;
- Two invertebrate localities identified as Cupertino quad of Miocene age;
- An invertebrate locality identified as Calabazas Creek of Miocene age; and
- An invertebrate locality identified as Calabazas Creek of Irvingtonian age.

A paleontological resources search was also performed using the Paleobiology Database, a non-governmental, non-profit public resource for paleontological data. Its purpose is to provide global, collection-based occurrence and taxonomic data for organisms of all geological ages. The

³⁰ University of California Museum of Paleontology, 2019. Collections Database, Locality Search. Available at: <https://ucmpdb.berkeley.edu/loc.html>, accessed May 21, 2019.



- Saratoga City Limit
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Hydrology
- Shrink-Swell Potential**
- Low (0-3)
- Moderate (3-6)
- High (6-9)
- Very High (9-30)

Figure IV.E-6
Shrink Swell Potential of Soils

search identified several microfossil collections of Jurassic age located near Mt. Eden Road, within the western part of the planning area, and a macrofossil collection of Miocene age near Castle Rock Ridge, to the southwest of the planning area.³¹

2. Regulatory Setting

a. Federal

(1) Federal National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the US Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95-124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide State, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

b. State

(1) Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972, and its main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active earthquake faults. The Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of known active faults and to issue appropriate maps. "Earthquake Fault Zones" were called "Special Studies Zones" prior to January 1, 1994. The maps are distributed to all affected cities, counties,

³¹ The Paleobiology Database, 2022. The Paleobiology Database. Available at: <https://paleobiodb.org/#/>, accessed July 27, 2022.

and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. As mentioned above, the city is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active faults cross the city.

(2) Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code (PRC), Section 2690- 2699.6) directs the CGS to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the Seismic Hazards Mapping Act is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards. The Seismic Hazards Mapping Act was passed by the legislature following the 1989 Loma Prieta earthquake. As a result, CGS geologists gather existing geological, geophysical, and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret this data regionally in order to evaluate the severity of the seismic hazards and designate as Zones of Required Investigation those areas prone to ground shaking, liquefaction, and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted within Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy. The CGS has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides (primarily the Bay Area and the Los Angeles basin). The portions of the city mapped by CGS as liquefaction and landslide hazard zones are shown in Figure IV.I-2 in *Section IV.I, Land Use, Agriculture, and Forestry Resources*.

(3) California Building Standards Codes

The 2019 California Building Code, which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2018 International Building Code and is the most current State building code. The 2019 California Building Code covers grading and other geotechnical issues, building specifications, and non-building structures. The City has adopted the most current State building codes, as indicated in Chapter 16 of the Municipal Code. The City's Building Division is responsible for reviewing plans, issuing building permits, and conducting inspections.

The California Building Code requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. Buildings less than or equal to 4,000 square feet also are required to prepare a geologic engineering report, except for one-story, wood-frame, and light-steel-frame buildings that are located outside of the Alquist-Priolo

Earthquake Fault Zones. The purpose of the geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as ground shaking, liquefaction, differential settlement, and expansive soils. Based on the conditions of the site, the building code requires specific design parameters to ensure construction of buildings that will resist collapse during an earthquake. These design parameters do not protect buildings from all earthquake-shaking hazards but are designed to reduce hazards to a manageable level. Requirements for the geotechnical investigation are presented in Chapter 16 “Structural Design” and Chapter 18 “Soils and Foundation” of the 2019 California Building Code. Geotechnical investigation reports for individual projects within the city would be reviewed by the City’s Building Division prior to issuance of building permits.

(4) CEQA Court Rulings on “Reverse CEQA”

The California Supreme Court concluded in the California Building Industry Association vs. Bay Area Air Quality Management District (CBIA v. BAAQMD) decision, that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” The CBIA v. BAAQMD ruling provided for several exceptions to the general rule where an analysis of the effects of the environment on the project is warranted: 1) if the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried); 2) if the project qualifies for certain specific exemptions (certain housing projects and transportation priority projects per PRC 21159.21 (f),(h); 21159.22 (a),(b)(3); 21159.23 (a)(2)(A); 21159.24 (a)(1),(3); or 21155.1 (a)(4),(6)); 3) if the project is exposed to potential noise and safety impacts on the project occupants due to proximity to an airport (per PRC 21096); and 4) school projects requiring specific assessment of certain environmental hazards (per PRC 21151.8).

c. Local

(1) Hillside Specific Plan

The amended Hillside Specific Plan was adopted in June 1994 and includes goals, policies, and action programs for development in hillside areas in the western portion of the planning area and in a few areas in the southern portion of the planning area. Some of the policies and action programs of the Hillside Specific Plan related to geology and soils have either been implemented or are functionally equivalent to the policies of the proposed General Plan and existing Municipal Code requirements discussed below. Policies and action programs related to geology and soils that are unique to the Hillside Specific Plan and could still be implemented are listed below.

Site Grading Policy 1: Grading, when required, shall be contoured wherever possible even though this practice increases quantity somewhat, and provide cut and fill slopes of three to one. Graded slopes should be 3:1 overall (with potential for terracing and ability for

landscaping). Revegetation of graded slopes shall be required. Steeper fill slopes, up to 2:1 may only be used where it can be shown landscaping and revegetation can be installed and maintained. Steeper slopes, up to 2:1 may only be used where it can be shown the slope can be adequately landscaped and maintenance over the long term will not be a problem and/or unusually difficult.

Site Grading Policy 2: No home shall be built so as to create a flat visible pad.

Site Grading Policy 3: Allow corrective grading in the western hillsides to minimize risks from geologic hazards especially for new or existing development provided it does not remove major trees or irrevocable damage the city's scenic resources.

Site Grading Policy 4: Grading should be minimized by locating roads and homesites on slopes less than 30% unless given prior specific approval by the governing bodies.

Site Grading Policy 5: Landslide and erosion problems on developing lands shall be avoided or corrected, including replanting removed and damaged trees where the benefit to the general public exceeds the environmental impact of the corrective project. City may require that such problems be corrected on adjacent lands.

Site Grading Policy 6: Roads should be aligned parallel to contours rather than up the face of hills wherever possible to minimize their visibility from the valley.

Site Grading Policy 7: Correction of stream erosion problems shall be accomplished using natural and/or natural appearing materials. Such improvements shall be considered engineered grading (and therefore be subject to Planning Commission approval).

Site Grading Policy 8: Long term maintenance of landscaped areas, open space, streams and slopes adjacent to roads shall be assured by private maintenance agreements included in subdivision CC&R's with provisions for City enforcement.

Site Grading Policy 9: Large, one-time grading operations, under proper control should be promoted as opposed to single lot-by-lot operations by individual lot owners. All necessary lot, driveway and pool pad grading should be done by the developer under bond and strict City control.

Site Grading Policy 10: No home or other structure shall be built on an area with an average slope that exceeds 30% or an area that exceeds 40% natural slope at any point under the structure with possibility for variance procedure and exception from the Subdivision Ordinance for unusual situations.

Site Grading Policy 11: Placing of creeks in culverts for private land use shall not be permitted except in extreme emergencies (i.e., potential loss of structure(s), economic considerations, health, safety, and welfare). Use of culverts for road crossings may be permitted.

Site Grading Policy 12: Engineered grading items on the Planning Commission agenda shall be public hearings.

Site Grading Action Program 1: Revise Grading Ordinance accordingly.

Aesthetics/Scenic Qualities Policy 2: Place homes near streets where appropriate to minimize grading. Arrange lot patterns to minimize the length of roads and driveways.

Ecology Policy 1: Minimize earthmoving and grading, avoid steep terrain except when necessary for roadways.

Ecology Policy 7: Revegetate graded areas as soon as feasible with native plants.

Ecology Action Program 1: Review and condition tentative maps accordingly.

Geology and Soils Policy 1: Benefit of residential land use in the hills falls to hillside residents and to them should fall an extraordinary [sic] costs for maintenance of the lands and features other than City and Utility Services.

Geology and Soils Policy 2: Every applicant seeking approval of any construction project within the Specific Plan Area shall at times have the burden of providing, to the satisfaction of the City and its Geologist and other professional consultants, that the proposed development will be constructed in such a manner as to be safe from known or reasonably predictable geologic hazards which may cause injury to persons or property.

Geology and Soils Policy 3: The Geologic Hazards Analysis of the Upper Calabazas creek watershed is a planning document which may require modification.

Geology and Soils Policy 4: No deviations or modifications of the Maps shall be permitted without prior written approval of the City Geologist.

Geology and Soils Policy 8: If grading proposed for a project, as specifically approved by the Planning commission, City Geologist and City Engineer, corrects a geologic hazard, then roads, driveways and structures may be located on such graded areas as approved.

Geology and Soils Policy 9: Projects or portions thereof that require a high level of maintenance activity over the long-term to prevent slope failures should generally not be approved since the City's ability to perform or enforce performance of maintenance is

limited. Project design should principally use solutions that minimize risk in not affecting public or private structures in the event of failure.

Geology and Soils Policy 10: City should continue to strictly enforce its Grading Ordinance through the City Geologist and Department of Inspection services and control of all work by soils engineer and geologist on all projects in hillsides.

Geology and Soils Action Program 1: Design and/or revise Ordinances to carry out the above policies for entire Specific Plan Area.

Hydrology and Flooding Policy 2: City Council, Planning Commission and City Staff should continue all available efforts to secure remedy to flooding and erosion problems along the main Calabazas and in already developed areas.

Sanitary Sewer Service Policy 1: Require all new residences on newly created lots to hook up to a sanitary sewer system to avoid groundwater contamination problems.

(2) Saratoga General Plan

The Saratoga General Plan includes the following relevant policies and implementation measures (IM) that assist in reducing or avoiding potential impacts to mineral resources, paleontological resources, and hazards related to geology and soils:

Land Use Element

IM LU-9.b: Require that all development applications in the hillsides include a grading plan, that cut and fill quantities be provided, and that access roads and dwelling size be consistent with the objective of minimizing grading.

Policy LU-12.8: Protect significant archeological, prehistoric, and paleontological Native American resources as required by CEQA.

IM LU-12.e: Continue to ensure that if construction or grading activities result in the discovery of unique paleontological resources, including individual fossils or assemblages of fossils, all work within 100 feet of the discovery shall cease and the Planning Department shall be notified. The resources shall be examined by a qualified paleontologist, and work may only resume when appropriate protections are in place and are approved by the Planning Department.

Open Space and Conservation Element

Policy OSC-10.2: Concentrate development in those portions of the community least susceptible to soil erosion and minimize grading and the introduction of impervious surfaces. Where appropriate, consider the use of on-site low impact development (LID) or green infrastructure elements, such as stormwater capture, infiltration, and biotreatment, to minimize stormwater runoff from sites.

IM OSC-10.b: Ensure erosion control measures are required with each development project as part of the development approval process. Project applicants shall demonstrate that project implementation will not result in increases in peak flow runoff to adjacent lands or drainage facilities.

Safety Element

Policy SAF-1.1: No development shall be permitted in geologic hazard areas without individual site-specific geotechnical investigations to determine depth of bedrock, soil stability, location of rift zones and other localized geotechnical problems.

IM SAF-1.1a: As part of the development review process, a qualified Geotechnical Consultant will review proposals involving sites having potential land instability or geologic hazards and will make recommendations accordingly.

Policy SAF-1.2: Development in areas subject to natural hazards shall be limited and shall be designed to protect the environment, inhabitants, and general public. In areas that have been proven to be unsafe, development of structures for human habitation shall be prohibited to the maximum extent permitted by law.

Policy SAF-1.3: Proposals for General Plan amendments, zone changes, use permits, variances, building site approvals, and all land development applications subject to environmental assessment according to CEQA guidelines shall be reviewed for hazardous conditions utilizing the most current data.

IM SAF-1.3a: Mitigation measures to eliminate potential geologic hazards identified during the environmental review process will be required as conditions of development.

Policy SAF-2.1: In order to mitigate the danger of earthquake damage, the City shall enforce strict earthquake construction and soil-engineering standards, selecting the most stable areas for development and requiring developers to compensate for soil instabilities through approved engineering and construction techniques.

Policy SAF-2.2: Critical structures and systems vital to the public health and safety (water, power and waste disposals systems, police and fire stations and communication facilities) shall be designed to mitigate any seismic or geologic hazards associated with their sites.

IM SAF-2.2a: When made available, the City should update the Safety Element to incorporate the latest mapping produced by the United States Geological Survey (USGS) and California Geological Survey (i.e. Alquist-Priolo Special Study Zones, Seismic Hazards Mapping Reports, etc.).

Policy SAF-2.3: The City should comply with State statutes regarding the identification and retrofit of non-reinforced masonry structures.

(3) Saratoga Municipal Code

Article 7-10 (Sewage Disposal) establishes standards for connecting to the public sanitary sewer system or installing and operating individual on-site sewage disposal systems. Section 7-10.020 requires that every building where persons reside, congregate or are employed connect to the sanitary sewer system in the most direct manner possible, and with a separate connection for each home or building.³² Section 7-10.020 also indicates that the standards for the approval, installation and operation of individual on-site sewage disposal systems must be consistent with the standards of the California Regional Water Quality Board as set out by the Santa Clara County Environmental Health Services and adopted by the Saratoga City Council. Section 7-10.030 (Adoption of County of Santa Clara Code Regarding Sewage Disposal) incorporates Division B11, Chapter II, Article 1 and 2 of the Code of the County of Santa Clara regarding sewage disposal.

Article 14-30 (Improvement Requirements) sets forth requirements and standards for subdivision and building site improvements in the city. Section 14-30.030 (Storm Water and Sewage) addresses requirements for storm drain systems and sanitary sewers. As stated in Section 14-30.030(d), new subdivisions or building sites must connect to the existing sanitary sewer system through the installation of additional mains and laterals. In the event the subdivision or the building site is not within the boundaries of a sanitation or sanitary district, an annexation to such a district may be required. Other than as might be permitted under Article 14-35 of the Municipal Code (Exceptions to Design and Improvement Requirements), disposal of sanitary sewage may not be by septic tank methods, or any other method other than by connection to a sanitary sewer system.

³² Applies to buildings that abut a street, alley or utility easement in which there is an approved public sanitary sewer or the boundary line of which is within two hundred feet of an approved public sanitary sewer, provided a right-of-way can be obtained and if possible grade is present.

Article 15-13 provides the zoning regulations for the Hillside Residential District, and requires that grading be designed to avoid erosion, slides, and other hazards; utility services, streets, and other access routes which traverse any geologic or soils hazard shall be specifically engineered to eliminate the risk of failure or collapse; and requires setbacks from hazard areas in accordance with the geologic and soils investigation report and recommendations. It also requires that a preliminary geologic and soils investigation and report be prepared and filed with site development plans unless the City Geologist determines that existing information makes this unnecessary. Additional studies may also be required prior to approval of a site development plan or issuance of a building permit, such as a soil and foundation engineering investigation; slope stability studies for terrain on or within one hundred feet of a significant recognized landslide deposit; an investigation addressing seismic hazards for any area within one hundred feet of a recognized trace of the potentially active Berrocal Fault; and a slope stability analysis showing the building site and its immediately surrounding area having a factor of safety against failure of at least 1.5 or equivalent, in the event of an earthquake on the San Andreas Fault having a magnitude of 8.3 on the Richter scale. When locating building sites, preference shall be given to areas classified in the City's geologic maps as Sbr, Sls, and Sun. Sites on potentially moving slopes (Pmw, Ps, Pd, Paf and Pdf), sites within the areas with fault rupture potential (Pf), and sites on moving slopes (Ms, or shallow landslide) shall not be approved unless geologic and soil engineering analysis provided by the applicant demonstrates long-term stability to the satisfaction of the City. No tentative or final map approval or building or grading permit shall be granted for a property that includes land within an Md (deep landslide) area unless it complies with all the requirements described in Section 16-65.030. No building or grading permit shall be issued for construction of any new building or structure, or addition to any existing building in any Pf area unless it complies with all requirements described in Section 16-65.050.

Article 15-20 provides the zoning regulations for the Residential Open Space District and includes similar requirements as Article 15-13 described above.

Article 16-15 adopts the 2019 (most recent) California Building Code. Article 16-17 of the Saratoga Municipal Code (Excavation and Grading) sets forth rules and regulations to control excavation, grading, and earthwork construction on private property to safeguard life, limb, property, and public welfare. Section 16-17.060 (Grading Permit Requirements) requires that a Soils Engineering Report and Engineering Geology Report be prepared to identify existing soil conditions, the geology of the site, and recommendations for grading procedures and design criteria for corrective measures. Section 16-17.060 may also require applicants to prepare a Liquefaction Study in support of their application for a grading permit if certain conditions are discovered during the course of an investigation.

Article 16-65 (Ground Movement Regulations) includes regulations to prohibit building in areas of existing earth movement or areas having extreme potential for earth movement, and not to permit building in those areas which are marginally stable and have either moderate or high potential for earth movement unless adequate precautionary measures are taken, and further professional opinion is obtained certifying that a site is safely developable. This article refers to the Ground Movement Potential Map³³ prepared for the City in 2013 and discussed under *Setting* above. Section 16-65.030 indicates that tentative or final subdivision approval shall not be granted for any property which includes land in a deep landslide (Md) area, unless such inclusion will not result in or permit any building, structure, driveway or street to be located in such area, and the entire Md area is dedicated as open space on a recorded map or agreement which contains an express prohibition against the construction or installation of any improvements in such area. No building or grading permit shall be issued for the construction or installation of any building or structure or any foundations therefor in an Md area, except for repair, reconstruction or modification of existing buildings or structures where such does not increase the floor space under roof and where such repair, reconstruction or modification does not require or involve any new or additional foundation. Section 16-65.035 includes requirements related to preparation of geologic and soils investigation reports for areas of potential ground movement, and Section 16-65.040 includes restrictions for areas of potential ground movement unless a geologic and geotechnical investigation report has been prepared which demonstrates that the development plan will be safe for the intended use against hazard from earth movement. Section 16-65.050 includes requirements related to development within areas of fault rupture potential (Pf), including preparation of a geologic investigation report showing the location or suspected location of faults and establishing setback zones between buildings and faults.

3. Impacts and Mitigation Measures

The following section provides an evaluation and analysis of the potential impacts of development under the project for the criteria of significance listed above and potential cumulative impacts. The geology and soils related policies and implementation measures in the proposed Housing Element Update, Safety Element Update, and 2040 General Plan Updates are essentially the same as previously existing policies and implementation measures, therefore no geology and soils related impacts from updating the policies or implementation measures of the General Plan would occur.

Based on the CEQA court rulings on "Reverse CEQA" described under *Regulatory Setting* above, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new projects) to be an environmental impact, unless the project could exacerbate an existing environmental hazard. Development under the project would not

³³ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.

exacerbate existing hazards related to surface fault rupture, seismic ground shaking, or seismic-related ground failure. As such, the following discussions of these seismic hazards are provided for informational purposes only.

a. Significance Criteria

Implementation of the proposed project would result in a significant impact related to geology and soils if it would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (1) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; (2) strong seismic ground shaking; (3) seismic-related ground failure, including liquefaction; and (4) landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

b. Analysis and Findings

The following discussion describes the potential impacts associated with geology and soils that would result from the project.

(1) Surface Rupture (Criterion 1)

As discussed above, any developments within the Alquist-Priolo Zone for the San Andreas Fault, which intersects the southwest corner of the planning area, require a specialized study to determine the location of the fault and appropriate setbacks for structures (if a fault is identified) during the planning stage of the development process. None of the parcels listed in the Housing Sites Inventory are located within the Alquist-Priolo Zone for the San Andreas Fault.

The Monte Vista-Shannon Fault Zone intersects the northern and eastern portions of the city, and the Berrocal Fault Zone intersects the western and southern portions of the city and planning area and are considered potentially active faults. There are many parcels listed in the Housing Sites Inventory that are located within or intersected by the County Geologic Hazard Zones for the Berrocal Fault Zone or Monte Vista-Shannon Fault Zone, as shown in Figure IV.E-2, therefore implementation of the project could result in residential development in areas that are potentially subject to fault rupture.

The Ground Movement Potential Map³⁴ prepared for the City in 2013 and referenced in Article 16-65 (Ground Movement Regulations) of the Municipal Code identifies zones of potential primary surface fault rupture along the main traces of the Berrocal Fault, Monte Vista Fault, and Shannon Fault. Development in these zones would be subject to the requirements of Section 16-65.050 of the Municipal Code which includes preparation of a geologic investigation report showing the location or suspected location of faults and establishing setback zones between buildings and faults. The City's requirements for geologic investigations of potentially active faults identified on the Ground Movement Potential Map go beyond the State's requirements for fault investigations for only active faults within Alquist-Priolo Zones, and significantly reduce the potential for loss, injury, or death involving fault rupture. Implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan, as discussed above under *Regulatory Setting*, would also ensure that development in geologic hazard areas would only be permitted if site-specific geotechnical investigations are performed to evaluate the geologic hazards and implementation of geotechnical recommendations would mitigate the geologic hazards.

Potential structural damage and the exposure of people to the risk of injury or death from structural failure due to fault rupture would be further minimized by compliance with engineering design and construction measures of the California Building Code, as required by the Municipal Code. Therefore, compliance with the Municipal Code and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to fault rupture would be less than significant.

(2) Ground Shaking and Seismic-Related Ground Failure (Criterion 1)

Development under the project would increase the amount and density of residential land uses in the planning area. The intensification of land uses would increase the number of people and structures that could be directly or indirectly affected by seismic ground shaking and ground failure hazards. Based on regional mapping, developments within the planning area would be potentially subject to damage from seismic ground shaking, and seismic-related ground failure including liquefaction, lateral spreading, and seismic settlement. Seismic-related ground failure

³⁴ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.

can result in damage to structures and other improvements (e.g., roadways and utilities) due to settlement, differential settlement, and lateral displacement.

During a major earthquake on a regional fault, strong to violent ground shaking could occur in the planning area.³⁵ Areas within the planning area have been mapped by CGS as liquefaction hazard zones,³⁶ as shown in Figure IV.E-4. Several of the parcels identified in the Housing Sites Inventory are located within or intersected by liquefaction hazard zones, including Housing Sites 5, 12, 21, 23, 57, 62, 69, 74 through 78, and 87, as shown in Figure IV.E-4. Areas that may be susceptible to lateral spreading in the planning area include areas where liquefaction hazard zones are located near creeks, drainage channels, embankments, retaining walls, or other free faces. Areas of the planning area that may be susceptible to seismic settlement would include areas where non-saturated, cohesionless sand or gravel soil is located, which can occur near creeks, at the base of steep slopes, and in areas where fill materials have been placed without proper compaction.

The risk to structures and improvements from seismic ground shaking and seismic-related ground failure is reduced through adherence to the design and materials standards set forth in the California Building Code and recommendations in site-specific geotechnical reports. Site-specific geotechnical reports are required by the California Building Code for all structures except those that are less than or equal to 4,000 square feet and are one-story, wood-frame, or light-steel-frame buildings that are located outside of the Alquist-Priolo Earthquake Fault Zones. Site-specific geotechnical reports are required by the Seismic Hazards Mapping Act for any structures that would be located in Seismic Hazards Zones mapped by CGS, including liquefaction hazard zones (which would include areas susceptible to lateral spreading). Prior to developments within CGS mapped Seismic Hazard Zones, the project proponent must perform a site-specific geotechnical evaluation of seismic hazards which must include recommendations to mitigate the seismic hazards in accordance with the guidelines of CGS Special Publication 117A.³⁷

As discussed above under *Regulatory Setting*, compliance with the Municipal Code would also require that soils engineering reports and engineering geology reports be prepared for developments that would require a grading permit or would be located in the Hillside Zoning District, Residential Open Space Zoning District, or an area where geologic hazards have been identified. The Municipal Code also indicates that the City may require applicants to prepare a Liquefaction Study in support of their application for a grading permit if certain conditions are discovered during the course of an investigation. Implementation of the policies and

³⁵ Association of Bay Area Governments (ABAG), 2022. Hazard Viewer Map. Available at: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcdo86fc8>, accessed August 1, 2022.

³⁶ California Geological Survey, 2022b. Earthquake Zones of Required Investigation. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>, accessed July 26, 2022.

³⁷ California Geological Survey, 2008. Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Revised and Re-adopted September 11.

implementation measures of the Hillside Specific Plan and General Plan would also ensure that development in geologic hazard areas would only be permitted if site-specific geotechnical investigations are performed to evaluate the geologic hazards and geotechnical recommendations would mitigate the geologic hazards.

Therefore, compliance with the Seismic Hazards Mapping Act and Municipal Code and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to seismic ground shaking and seismic related ground failure including liquefaction, lateral spreading, and seismic settlement, would be less than significant.

(3) Landslides (Criterion 1)

Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials. Much of the hillside areas in the western and southern portions of the planning area, and some areas in the central and southeastern portions of the planning area have been mapped by CGS as seismically induced landslide hazard zones, as shown in Figure IV.E-5. Many of the parcels identified in the Housing Sites Inventory, including the majority of the vacant sites, are located within or intersected by landslide hazard zones, as shown in Figure IV.E-5.

The Ground Movement Potential Map³⁸ for the city provides additional details regarding the areas within the planning area that have significant potential for ground movement and unstable ground characterized by seasonally active downslope movement. There are several parcels identified in the Housing Sites Inventory that are intersected by areas of seasonally active shallow landslides, including Housing Sites 13, 25, 41, 42, and 54 on Figure IV.E-5. There is also one parcel identified in the Housing Sites Inventory (Housing Site 53 on Figure IV.E-5) that is located almost entirely within an area of seasonally active deep landslides. Development in areas susceptible to landslides can present potential risks as structures and other improvements could be damaged by landslides. Development in areas susceptible to landslides can also exacerbate the risk of landslides occurring as grading and excavation activities can potentially destabilize existing slopes.

The risks associated with development in areas susceptible to landslides are reduced through adherence to recommendations in site-specific geotechnical reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed under *Ground Shaking and Seismic-Related Ground Failure* above. This would include preparation of a site-specific

³⁸ Cottoon, Shires and Associates, 2013. Ground Movement Potential Map, April.

geotechnical evaluation of landslide hazards which must include recommendations to mitigate the landslide hazards in accordance with the guidelines of CGS Special Publication 117A.³⁹

As discussed above under *Regulatory Setting*, compliance with the Municipal Code would also require that soils engineering reports and engineering geology reports be prepared for developments that would require a grading permit or would be located in the Hillside Zoning District, Residential Open Space Zoning District, or an area where geologic hazards have been identified. The Municipal Code also indicates that additional studies may be required prior to approval of a site development plan or issuance of a building permit, such as a soil and foundation engineering investigation and slope stability studies for terrain on or within one hundred feet of a significant recognized landslide. When locating building sites, preference is given to areas of stable land, and sites on moving slopes (shallow landslide) would not be approved unless geologic and soil engineering analysis provided by the applicant demonstrates long-term stability to the satisfaction of the City. The Municipal Code also indicates that no new roads or structures can be built on deep landslide areas; therefore, potential development of Housing Site 53 on Figure IV.E-5 may be limited to a small area in the eastern portion of the site that is not located on a deep landslide according to the Ground Movement Potential Map⁴⁰ for the city. Implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would also ensure that grading is performed in a manner that would not exacerbate landslide or slope stability risks.

Therefore, compliance with the Seismic Hazards Mapping Act and Municipal Code and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to landslides and slope stability would be less than significant.

(4) Soil Erosion and Loss of Topsoil (Criterion 2)

Soil erosion, which is discussed in detail in *Section IV.H, Hydrology and Water Quality*, could occur during grading and construction of residential developments under the project. As described in *Section IV.H*, compliance with the State Water Resources Control Board's Construction General Permit, including the preparation and implementation of Stormwater Pollution Prevention Plans, would ensure that developments that would disturb one acre or more of land would result in less-than-significant impacts related to erosion or loss of topsoil during construction. Compliance with the requirements of the Municipal Code, and implementation of the policies and action programs of the Hillside Specific Plan, the policies and implementation measures of the General Plan, and the City's construction site inspection and control program in accordance with Provision C.6 of

³⁹ California Geological Survey, 2008. Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Revised and Readopted September 11.

⁴⁰ Cotton, Shires and Associates, 2013. Ground Movement Potential Map, April.

the MRP, would further ensure that construction activities would not result in significant impacts related to erosion, including construction activities that disturb less than one acre of land.

During operation of residential developments under the project, the developments would be covered with buildings, pavement surfaces, and landscaping, which would minimize the potential for post-development erosion. Therefore, compliance with the Construction General Permit and Municipal Code and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to erosion or loss of topsoil would be less than significant.

(5) Unstable Soil, Subsidence, and Collapse (Criterion 3)

Potential impacts related to unstable soil on sloping terrain were discussed above under *Landslides*. Other unstable soils include loose unconsolidated soils and clays that can undergo settlement under new loads such as fill material or structures. Such soils are often present in marshy areas or near the margins of bays, rivers, and creeks where silts, clay, and alluvial deposits occur in saturated environments. Undocumented fill materials (e.g., fill materials from unknown sources that may have been placed without appropriate compaction) may also be unstable and experience settlement under new loads. Settlement and differential settlement of unstable soil can cause significant damage to buildings and other improvements over time.

The risks associated with development in areas of unstable soil are reduced through adherence to the design and materials standards set forth in the California Building Code and adherence to recommendations in site-specific geotechnical reports and soils reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed above.

Subsidence or collapse can result from the removal of subsurface water resulting in either catastrophic or gradual depression of the ground surface elevation. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. Only approximately 0.1 feet of historical land subsidence is estimated to have occurred in the planning area and groundwater levels are above the historically low water levels in the majority of the Santa Clara Subbasin subsidence monitoring wells.⁴¹ If construction-related dewatering would be required during residential development under the project, it would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in land subsidence. The water supply source in the southwest portion of the city is primarily local surface water, and

⁴¹ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

the water supply source for the remainder of the city is primarily imported surface water.⁴² Development under the project could lead to an increased demand for water, which could lead to an increase in groundwater pumping; however, the Santa Clara Valley Water District would continue to monitor groundwater use and implement groundwater recharge activities to ensure that groundwater extraction is performed in a sustainable manner as outlined in the Groundwater Management Plan for the Santa Clara Subbasin.⁴³ Therefore, residential development under the project would not contribute to subsidence.

Residential development under the project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and Municipal Code; and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to unstable soil, subsidence, and collapse would be less than significant.

(6) Expansive Soils (Criterion 4)

Expansive soils may be present in areas where the clay content of soil is high. The shrink-swell potential of soil is low throughout much of the planning area, and moderate in much of the western portion of the planning area,⁴⁴ as shown in Figure IV.E-6. Many of the parcels identified in the Housing Sites Inventory, including many of the vacant sites in the western portion of the planning area, are located within or intersected by areas of moderate shrink-swell potential, as shown on Figure IV.E-6. Residential development under the project could include construction of structures and improvements in areas of expansive soils. If appropriate design and construction methods are not incorporated into developments, expansive soils could cause damage to structures and improvements. The risks of damage associated with development in areas with expansive soil is reduced through adherence to recommendations in site-specific geotechnical reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed above.

Development under the project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and Municipal Code; and implementation of the policies and implementation measures of the Hillside Specific Plan and General Plan would ensure that potential impacts related to expansive soil would be less than significant.

⁴² San Jose Water Copmany, 2022. Water Source Map. Available at: <https://www.sjwater.com/water-source-map>, accessed July 11, 2022.

⁴³ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

⁴⁴ Santa Clara County Planning Department, 2022. Soil of Santa Clara County. Available at: <https://sccplanning.maps.arcgis.com/apps/webappviewer/index.html?id=39cca200bb4743eeaa0e15838ab85d2>, accessed July 27, 2022.

(7) Septic Tanks or Alternative Wastewater Disposal (Criterion 5)

Development under the project would generally occur in areas where developments would be able to tie into existing wastewater sewer systems. As discussed above under *Regulatory Setting*, the Municipal Code establishes standards for connecting to the public sanitary sewer system or installing and operating individual on-site sewage disposal systems. Connecting to the public sanitary sewer system is required for all developments where it is feasible, which may require installation of additional sewer mains and laterals and annexation to be within the boundaries of a sanitation or sanitary district. In addition, the policies of the Hillside Specific Plan require that all new residences on newly created lots to hook up to a sanitary sewer system to avoid groundwater contamination problems. If installation and operation of individual on-site sewage disposal systems (i.e., septic system) is the only feasible option for a development site, then the septic system must be consistent with the standards of the California Regional Water Quality Board as identified by the Santa Clara County Department of Environmental Health and adopted by the Saratoga City Council.

The Santa Clara County Department of Environmental Health requirements for installation of a septic/onsite wastewater treatment system (OWTS) include preparation of a site assessment, soil analysis, and percolation testing. Conventional septic systems are not permitted on slopes greater than 30 percent. An alternative wastewater dispersal system would be required for slopes exceeding 30 percent. OWTS are prohibited in slopes greater than 50 percent. For sites on slopes greater than 20 percent but less than 50 percent, a geotechnical report must demonstrate that the septic system would not permit sewage effluent to surface, degrade water quality, affect soil stability, present a threat to the public health or safety, or create a public nuisance.⁴⁵

Compliance with the Santa Clara County Department of Environmental Health requirements for installation of a septic/OWTS would ensure that use of septic tanks or alternative wastewater disposal would only occur on sites that have soils capable of adequately supporting their use. Therefore, potential impacts related to the use of septic tanks or alternative wastewater disposal for residential development under the project would be less than significant.

(8) Unique Paleontological Resources or Geologic Features (Criterion 6)

Unique geologic features have not been identified in the planning area. As described under *Setting* above, many fossil localities have been identified within Santa Clara County, including several localities potentially located within or near the planning area. Development under the project would involve excavation and grading that could encounter and damage unique

⁴⁵ Santa Clara County Department of Environmental Health, 2022. Application for Septic/OWTS for New Development (LU71/LU74/LU75). Available at: <https://cpd.sccgov.org/application-septicowts-new-development-lu71lu74lu75>, accessed August 2, 2022.

paleontological resources if appropriate precautions are not taken. Under the project, Policy LU-12.9 calls for the protection of significant archeological, prehistoric, and paleontological Native American resources as required by CEQA, and Implementation Measure LU-12.e requires that if construction or grading activities result in the discovery of unique paleontological resources, including individual fossils or assemblages of fossils, all work within 100 feet of the discovery shall cease and the Planning Department shall be notified. The resources must be examined by a qualified paleontologist, and work may only resume when appropriate protections are in place and are approved by the Planning Department. The requirements of General Plan Implementation Measure LU-12.e would not ensure protection of paleontological resources, as it relies on untrained personnel (i.e., contractors) to determine whether a paleontological resource is unique or not unique before taking appropriate action to protect and evaluate the paleontological resource. The potential for destruction of paleontological resources during development under the project is a potentially significant impact.

Impact GEO-1: New development could result in the potential for destruction of paleontological resources. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure GEO-1: Paleontological Resources during Construction. Should any paleontological resources be encountered during construction activities, all ground-disturbing activities within 100 feet of the find shall be stopped and a qualified paleontologist shall be contacted to assess the situation per Society of Vertebrate Paleontology standards, consult with agencies as appropriate, and make recommendations for the treatment of the discovery if found to be significant. If construction activities cannot avoid the paleontological resources, adverse effects to paleontological resources shall be mitigated as follows: If fossils are discovered during excavation, Principal Paleontologist or his/her designated representative will make a preliminary taxonomic identification. The Principal Paleontologist will then inspect the discovery, determine whether further action is required, and recommend measures for further evaluation, fossil collection, or protection of the resource in place, as appropriate. Any subsequent work will be completed as quickly as possible to avoid damage to the fossils and delays in construction schedules. At a minimum, the paleontological staff will assign a unique field number to each specimen identified; photograph the specimen and its geographic and stratigraphic context along with a scale near the specimen and its field number clearly visible in close-ups; record the location using a global positioning system (GPS), record the field number and associated specimen data (identification by taxon and element, etc.) and corresponding geologic and geographic site data (location, elevation, etc.) in the field notes and in a daily monitoring report; stabilize and prepare all fossils for identification, and identify to lowest taxonomic level. Upon completion

of fieldwork, all significant fossils collected will be prepared to a point ready for curation. Preparation will include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens will be identified to the lowest taxonomic level, cataloged, analyzed, and delivered to an accredited museum repository for permanent curation and storage. The cost of curation is assessed by the repository and is the responsibility of the Project proponent. A report to be submitted to the repository museum documenting the results of the paleontological mitigation monitoring efforts associated with the Project will be prepared by the Principal Paleontologist. The report will include a summary of the field and laboratory methods, an overview of the Project area geology and paleontology, a list of taxa recovered, an analysis of fossils recovered and their scientific significance, and recommendations. (LTS)

Implementation of Mitigation Measure GEO-1 would ensure that development under the project would result in less-than-significant impacts to paleontological resources.

(9) Cumulative Geology and Soils Impacts

This analysis evaluates whether the impacts of the proposed project, together with the impacts of cumulative development in areas surrounding the planning area, including the El Paseo and 1777 Saratoga Ave Mixed Use Village and Costco Westgate cumulative projects, would result in a cumulatively significant impact with respect to geology and soils. Potential impacts related to geology, soils, and paleontological resources generally do not extend far beyond an individual development's boundaries because each development may have unique geologic and paleontological considerations. Therefore, the potential for cumulative impacts is generally limited to individual development sites and adjacent sites. For this reason, potential impacts are typically confined to discrete spatial locations and do not combine to create a significant cumulative impact. The exception to this generalization would occur where a larger-scale geologic event, such as a large landslide or regional subsidence, might affect an extensive area. As discussed under *Landslides* above, development under the project would be performed in accordance with recommendations from site-specific geotechnical investigations and recommendations that would address potential landslide hazards as required by the Seismic Hazards Mapping Act, Municipal Code, and policies and implementation measures of the Hillside Specific Plan and General Plan; and development would not occur on areas of active deep landslides, as required by the Municipal Code. Therefore, development under the project would not have a cumulatively considerable impact related to landslides.

The geographic area considered for potential cumulative subsidence impacts is the Santa Clara Subbasin of the Santa Clara Valley Groundwater Basin. Only approximately 0.1 feet of historical land subsidence is estimated to have occurred in the planning area, and groundwater levels are above the historical low water levels in the majority of the Santa Clara Subbasin subsidence

monitoring wells.⁴⁶ If construction-related dewatering would be required during development under the project, it would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in land subsidence. The water supply source in the southwest portion of the city is primarily local surface water, and the water supply source in the remainder of the city is primarily imported surface water.⁴⁷ Development under the project could lead to an increased demand for water, which could lead to an increase in groundwater pumping; however, the Santa Clara Valley Water District would continue to monitor groundwater use and implement groundwater recharge activities to ensure that groundwater extraction is performed in a sustainable manner as outlined in the Groundwater Management Plan for the Santa Clara Subbasin.⁴⁸ Therefore, development under the project would not have a cumulatively considerable impact related to subsidence.

Therefore, cumulative impacts related to geology, soils, and paleontological resources associated with the development under the project would be less than significant.

⁴⁶ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

⁴⁷ San Jose Water Company, 2022. Water Source Map. Available at: <https://www.sjwater.com/water-source-map>, accessed July 11, 2022.

⁴⁸ Santa Clara Valley Water District, 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

F. GREENHOUSE GAS EMISSIONS

This section describes the existing greenhouse gas (GHG) conditions in the planning area and its vicinity; discusses the regulations and policies pertinent to GHGs; and assesses the potentially significant impacts to the environment that could result from implementation of the project and its associated development.

1. Setting

a. Climate Change and GHG Emissions

Climate change refers to change in the Earth's weather patterns, including the rise in temperature due to an increase in heat-trapping GHGs in the atmosphere. Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Since part of the re-radiation is back toward the surface and the lower atmosphere, the global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-20th century and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Other GHGs of concern include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), but their contribution to climate change is less than 1 percent of the total GHGs that are well-mixed (i.e., that have atmospheric lifetimes long enough to be homogeneously mixed in the troposphere).¹ Each GHG has a different global warming potential. For instance, CH₄ traps about 28 times more heat per molecule than CO₂.² As a result, emissions of GHGs are reported in metric tons of carbon dioxide equivalents (CO₂e), wherein each GHG is weighted by its global warming potential relative to CO₂.

¹ Intergovernmental Panel on Climate Change (IPCC), 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

² Intergovernmental Panel on Climate Change (IPCC), 2014. AR5 Synthesis Report: Climate Change 2014.

Ice-core records of historical atmospheric CO₂ concentrations, which currently extend back about 800,000 years, indicate that CO₂ concentrations naturally fluctuate between glacial and interglacial periods. According to the Intergovernmental Panel on Climate Change (IPCC), over the past few hundred years the atmospheric concentrations of CO₂ have increased to unprecedented levels compared to previous fluctuations in CO₂ concentrations observed over the past 800,000 years due to anthropogenic sources. In 2011, concentrations of CO₂, CH₄, and N₂O exceeded the pre-industrial era (before 1750) by about 40, 150, and 20 percent, respectively.³ Based on measurements of the Earth's global average surface temperature, eight of the top 10 warmest years on record since 1880 have occurred in the last decade.⁴

The global increases in CO₂ concentrations are due primarily to fossil fuel combustion and land use change (e.g., deforestation). The dominant anthropogenic sources of CH₄ are from ruminant livestock, fossil fuel extraction and use, rice paddy agriculture, and landfills, while the dominant anthropogenic sources of N₂O are from ammonia for fertilizer and industrial activity. Emissions of HFCs, PFCs, and SF₆ are not naturally occurring; they originate from industrial processes such as semiconductor manufacturing, their use as refrigerants and other products, and electric power transmission and distribution.⁵

b. Existing GHG Emission and Projections

In 2019, the California Air Resources Board (CARB) estimated that transportation was responsible for about 40 percent of California's GHG emissions, followed by industrial sources and electrical power generation at about 21 percent and 14 percent, respectively.⁶ In 2015, 85 million metric tons of CO₂e was emitted from anthropogenic sources within the San Francisco Bay Area Air Basin (SFBAAB). Emissions of CO₂ dominate the GHG inventory in the SFBAAB, accounting for about 90 percent of the total CO₂e emissions reported.⁷ The 2015 GHG emissions in the SFBAAB are summarized in Table IV.F-1.

³ Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

⁴ National Aeronautics and Space Administration (NASA), 2022. 2021 Tied for 6th Warmest Year in Continued Trend, NASA Analysis Shows. Available at: <https://climate.nasa.gov/news/3140/2021-tied-for-6th-warmest-year-in-continued-trend-nasa-analysis-shows/>, accessed May 18, 2022. Posted January 13.

⁵ Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

⁶ California Air Resources Board (CARB), 2021. California Greenhouse Gas Emissions for 2000 to 2019—Trends of Emissions and Other Indicators, July 28.

⁷ Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

TABLE IV.F-1 SAN FRANCISCO BAY AREA 2015 GHG EMISSIONS INVENTORY

Pollutant	Percent	CO₂e (MMT/Year)
CO ₂	90	76.5
CH ₄	4	3.4
N ₂ O	2	1.7
HFC, PFC, SF ₆	4	3.4
Total	100	85

Note: MMT = million metric tons

Source: Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

In 2020, the City adopted a Climate Action Plan which includes a GHG emissions inventory for community operations emissions from a wide variety of sources. The community GHG emissions totaled 179,893 metric tons of CO₂e in 2008 and 119,974 metric tons of CO₂e in 2017, decreasing 33 percent over that period. As shown in Table IV.F-2, reductions occurred in all inventoried sectors except the Offroad sector. The largest decline occurred in the Residential sector, due to a reduction in electricity and natural gas consumption and an improvement in the carbon intensity of electricity.⁸

c. Effects of GHG Emissions

According to the BAAQMD, some of the potential effects of increased GHG emissions and associated climate change may include loss of snowpack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years, and sea level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health.⁹

In October 2018, the IPCC published a special report on potential long-term climate change impacts based on the projected increases in temperature due to global climate change. The IPCC report found that we are already seeing the consequences of global warming due to a 1 degree Celsius (°C) increase in pre-industrial levels, such as extreme weather, rising sea levels, and diminishing Arctic sea ice. Global warming is likely to reach 1.5°C above pre-industrial levels between 2030 and 2050 if it continues to increase at the current rate. Some of the impacts due to ongoing global warming could be avoided by limiting future global warming to 1.5°C compared to 2°C. For example, by limiting global warming to 1.5°C or lower, the likelihood of an Arctic Ocean

⁸ City of Saratoga, 2020. Climate Action Plan 2030. December 2.

⁹ Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

TABLE IV.F-2 CITY OF SARATOGA EMISSIONS TRENDS BY SECTOR

Year	Residential	Commercial	Transportation	Waste	Off-Road	Water	Wastewater	Total	% Change from 2008
2008	78,162	22,512	66,612	5,669	4,607	1,474	856	179,893	
2009	74,757	21,425	66,342	4,841	4,031	1,265	841	173,501	-4%
2010	67,196	18,633	64,352	4,484	4,486	916	794	160,861	-11%
2011	66,084	16,825	63,226	4,492	4,381	818	779	156,605	-13%
2012	64,033	17,382	61,600	4,574	4,458	945	797	153,790	-15%
2013	64,538	17,240	61,042	4,520	4,631	950	793	153,713	-15%
2014	53,687	15,747	60,756	4,514	4,658	851	795	141,008	-22%
2015	53,493	15,248	58,591	4,381	4,977	633	785	138,108	-23%
2016	48,435	13,240	57,530	4,363	4,907	440	744	129,660	-28%
2017	43,162	9,597	56,847	4,287	5,018	338	724	119,974	-33%
% Change from 2008	-45%	-57%	-15%	-24%	9%	-77%	-15%	-33%	

Notes: All emissions are reported in tons of CO₂e. Although the City's GHG emissions inventory quantifies emission levels back to 2005, the Climate Action Plan uses a 2008 baseline from which to establish reduction targets as recommended in the California Air Resources Board's Climate Change Scoping Plan.

Source: City of Saratoga, 2020. Climate Action Plan 2020, December 2.

free of sea ice in summer would be ten times lower compared to the likelihood under the scenario of 2°C increase. Beyond the 1.5°C threshold, there would be significant increases in the risk associated with long-lasting or irreversible changes, such as the loss of ecosystems. The IPCC states that to limit the global warming to 1.5°C, rapid transitions are needed in land, energy, industry, building, transport, and urban sectors to reach the goal of carbon neutrality by 2050, which means that the Earth's anthropogenic GHG emissions each year would be removed completely through carbon offsetting, sequestration, or other means.¹⁰

¹⁰ Intergovernmental Panel on Climate Change (IPCC), 2018. IPCC Press Release, Summary for Policymakers of IPCC Special Report on Global Warning of 1.5°C approved by governments, October 8.

2. Regulatory Setting

a. Federal Regulations

(1) Federal Climate Action Goals

The United States (U.S.) participates in the United Nations Framework Convention on Climate Change. In 1998, the U.S. signed the Kyoto Protocol, which would have required reductions in GHGs; however, the protocol did not become binding in the U.S. as it was never ratified by Congress. Instead, the federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the U.S. announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. In 2015, the U.S. submitted its “intended nationally determined contribution” to the framework convention, which targets to cut net GHG emissions by 26 to 28 percent below 2005 levels by 2025.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it. On April 2, 2007, the U.S. Supreme Court ruled that CO₂ is an air pollutant as defined under the Clean Air Act, and that the EPA has the authority to regulate emissions of GHGs.¹¹ The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, they were a prerequisite for implementing GHG emissions standards for vehicles.

(2) Federal Vehicle Emission Regulations

The EPA has established national GHG emission and fuel economy regulations for vehicles that would achieve substantial GHG emissions reductions along with reductions in other criteria pollutants. Some of the key EPA regulations related to GHG emissions from vehicles are summarized below:

¹¹ Massachusetts, et al. v. U.S. Evtl. Prot. Agency, et al. (2007) 549 U.S. 497.

- In 2010, EPA in collaboration with the National Highway Traffic Safety Administration (NHTSA) finalized updated Corporate Average Fuel Economy (CAFE) and GHG emissions standards for light-duty vehicles for model years 2012 to 2016.
- In 2012, EPA and NHTSA extended the CAFE and GHG emissions standards for light-duty vehicles for model years 2017 to 2025. Combined with the 2012 to 2016 standards, the regulation will result in vehicles emitting 50 percent less than 2010 levels in 2025.
- In 2016, EPA and NHTSA finalized national GHG emission and fuel economy standards for medium- and heavy-duty vehicles that would cover model years 2018 to 2027 for certain trailers and model years 2021 to 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks.
- In 2020, EPA and NHTSA finalized updated CAFE and GHG emissions standards for light-duty vehicles and established new standards, covering model years 2021 through 2026.
- In 2021, EPA revised the GHG emissions standards for light-duty vehicles for model years 2023 through 2026 to leverage advances in clean car technology.
- In 2022, NHSTA revised the CAFE standards for light-duty vehicles for model years 2024 to 2026, which are expected to result in average fuel economy label values of 49 miles per gallon.

b. State Regulations

California has set ambitious GHG emission reduction targets for the next 30 years. As described below, the State has implemented a range of regulatory programs to help achieve statewide climate action goals.

(1) California Climate Action Goals

California has established the following long-term climate action goals:

- **Assembly Bill (AB) 32:** Reduce GHG emissions to 1990 levels by 2020.
- **Senate Bill (SB) 32:** Reduce GHG emissions to 40 percent below 1990 levels by 2030.
- **Executive Order B-55-18:** Carbon neutrality as soon as possible, but no later than 2045.
- **Executive Order S-3-05:** Reduce GHG emissions to 80 percent below 1990 levels by 2050.

It should be noted that executive orders are legally binding only on State agencies and have no direct effect on local government or the private sector.

(2) California Vehicle Emission Regulations

California has established statewide GHG emission and fuel economy regulations for vehicles that align with or supersede the national standards. The key State regulations related to GHG emissions from vehicles are summarized below:

- The Pavley Regulations (AB 1493), as amended in 2009, required a 30 percent reduction in state GHG emissions from new passenger vehicles from 2009 through 2016.
- The Advanced Clean Cars Program extends the Pavley Regulations beyond 2016 and established a technology mandate for zero-emission vehicles.
- The Low-Carbon Fuel Standard (Executive Order S-1-07), as amended in 2019, requires a 20 percent reduction in the carbon intensity of California's transportation fuels by 2030.
- SB 375 establishes regional GHG reduction targets from passenger vehicles for the years 2020 and 2035 by requiring metropolitan planning organizations to develop and implement Sustainable Communities Strategies that align regional transportation planning efforts with regional housing allocation needs.

(3) California Energy Efficiency Regulations

California has established statewide energy efficiency regulations, including programs that increase the statewide procurement of renewable energy. The key State regulations related to GHG emissions from energy use are summarized below:

- The Renewable Portfolio Standard Program, as updated in 2018 (SB 100), requires the State to procure 60 percent of its electricity from renewable sources by 2030 and 100 percent from carbon-free sources by 2045.
- Title 24 Building Efficiency Standards are updated every three years with the long-term vision to support zero-net energy for all new single-family and low-rise residential buildings by 2020 and new high-rise residential and nonresidential buildings by 2030.
- Title 24 California Green Building Standards, referred to as the CALGreen Code, aim to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality.

(4) California Cap-and-Trade Program

The Cap-and-Trade Program is a key element of California’s strategy to reduce GHG emissions from covered entities¹² that are responsible for about 85 percent of California’s GHG emissions. The program establishes a declining limit on major sources of GHG emissions throughout California, and it creates a powerful economic incentive for significant investment in cleaner and more efficient technologies. CARB creates allowances equal to the total amount of permissible GHG emissions (i.e., the “cap”). Each year, fewer allowances are created and the annual cap declines. As a result, the annual auction reserve price for allowances increases which creates a steady and sustained carbon price signal to incentivize actions to reduce GHG emissions and enable a smooth transition to a cleaner economy.

(5) California’s Short-Lived Climate Pollutant Reduction Strategy

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy is California’s plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes.¹³ SLCPs include methane, HFCs, and anthropogenic black carbon. In accordance with SB 1383, the SLCP Reduction Strategy has set the following targets for statewide reductions in SLCP emissions:

- 40 percent below 2013 levels by 2030 for methane and HFCs.
- 50 percent below 2013 levels by 2030 for anthropogenic black carbon.

The SLCP Reduction Strategy also provides specific direction for reductions from dairy and livestock operations and from landfills by diverting organic materials.

(6) California’s Climate Change Scoping Plan

In December 2008, CARB adopted the Climate Change Scoping Plan to identify how the State can achieve its 2020 climate action goal under AB 32. In 2017, CARB updated the Scoping Plan to identify how the State can achieve its 2030 climate action goal under SB 32, and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The 2017 Scoping Plan includes the regulatory programs identified above, such as the Advanced Clean Cars Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, energy efficiency standards, SLCP Reduction Strategy, and Cap-and-Trade Program.¹⁴

¹² The program’s covered entities include electric power plants, fuel distributors (natural gas and petroleum), and large industrial facilities that emit more than 25,000 million tons of CO₂e per year.

¹³ California Air Resources Board (CARB), 2017a. Short-Lived Climate Pollutant Reduction Strategy, March.

¹⁴ California Air Resources Board (CARB), 2017b. California’s 2017 Climate Change Scoping Plan, November.

c. Local Regulations

The BAAQMD is the regional government agency that regulates sources of GHG emissions within the SFBAAB. The BAAQMD established a climate protection program that includes measures that promote energy efficiency, reduce regional vehicle miles travelled (VMT), and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

(1) BAAQMD 2017 Clean Air Plan

The BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate, which is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The 2017 Clean Air Plan also includes measures designed to reduce GHG emissions.

(2) Saratoga Climate Action Plan

In December 2020, the City adopted the Climate Action Plan 2030 (CAP).¹⁵ The purpose of the CAP is to compile existing and potential actions that the City's government and the community can take to address climate change. This CAP establishes GHG reduction targets similar to the State's goals to reduce emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The CAP lays out measures to exceed the 2030 target and put the City on a trajectory to meet the 2050 goal. The CAP provides energy use, transportation, waste, water, and natural system strategies and actions that substantial evidence demonstrates, if fully implemented, will collectively achieve the targeted emissions level for the year 2030. Specific measures include increasing energy efficiency in buildings, electrifying buildings and appliances, accelerating zero emission vehicle adoption, and using clean and renewable energy sources.

In 2010, the California State Office of Planning and Research adopted revised CEQA Guidelines that allow streamlining of project-level analysis of GHG emissions through compliance with a GHG reduction plan contained in a general plan, long range development plan, or separate climate action plan. Plans must meet the criteria set forth in Section 15183.5 of the CEQA Guidelines, which include requirements for quantifying existing and projected GHG emissions;

¹⁵ City of Saratoga, 2020. Climate Action Plan 2030, December 2.

identifying a level of cumulative GHG emissions that would not be considered significant; specifying measures and standards that would ensure achievement of this level; and continued monitoring to track progress. The City's CAP meets these criteria.

(3) Saratoga Building Codes

The City has adopted the following codes related to GHG emissions and energy use of buildings for future projects:

- 2019 California Building Code;
- 2019 California Green Building Standards Code (CALGreen Code); and
- 2019 California Energy Code.

(4) Saratoga Municipal Code

The following sections of the City of Saratoga Municipal Code reduce City-wide GHG emissions:

Article 9-70 (Transportation Demand Management) promotes the implementation of programs to reduce traffic congestion and improve air quality in the City.

Article 15-45.055 (Residential Design Handbook) requires that all single-family structures be built in accordance with the guidelines in the Residential Design Handbook, which includes information on energy efficiency and promotes native vegetation and minimizing the amount of paved surfaces.

Article 15-47 (Water-Efficient Landscapes) promotes water conservation, encourages water-efficient landscaping including programming watering devices to account for weather patterns, using recycled water for landscape irrigation, and grouping plants for efficient watering. Also requires that the City inform new home-owners about water-efficient landscapes.

Article 16-47 (Green Building Regulations) requires that new single-family dwellings, multi-family dwellings, commercial, mixed-use, public and community facility buildings demonstrate compliance with green building standards.

Article 16-49 (Green Building Standards Code) requires compliance with the State of California Green Building Code (CALGreen), which includes requirements for diverting at least 65 percent of waste from landfills during construction and demolition.

Article 16-75.030 (Water Conservation Devices) requires that all newly constructed buildings incorporate water conservation devices into plumbing and irrigation systems.

(5) Saratoga General Plan

The Saratoga General Plan includes the following relevant policies, actions, and implementation measures (IMs) that assist in reducing or avoiding potential impacts related to air quality.

Housing Element

Policy Action 4-1.3: Encourage Efficient Use of Energy Resources in Residential Development.

The City shall encourage housing developers to maximize energy conservation through proactive site, building and building systems design, materials, and equipment. The City encourages the development community to exceed the provisions of Title 24 of the California Building Code. The City shall encourage the use of Energy Star®-rated appliances, other energy-saving technologies and conservation. To enhance the efficient use of energy resources, the City shall review the potential of offering incentives or other strategies that encourage energy conservation. The City shall review and update its website pertaining to dissemination of information for energy resources in residential development to ensure that links are appropriate and functional.

Policy Action 4-1.4: Encourage Green Building Practices in Home Construction. The City understands the importance of sustainable use of limited resources and encourages the use of “green building” practices in new and existing housing. The City’s Design Review process requires that new and existing residential home construction projects include a completed CalGreen checklist. The CalGreen checklist tracks green features incorporated into the home. The checklist is produced by the California Building Standards Commission.

In addition, the City provides public information on its website pages, “Go Green in Saratoga” and offers low cost permits as an incentive to install solar panels.

Land Use Element

Policy LU-15.2: Encourage use of trip demand measures as part of major commercial and office development projects to reduce dependence on auto use.

IM LU.15.a: Amend the standard conditions of approval for all new development projects to require that all projects comply with Bay Area Air Quality Management District (BAAQMD) dust emission reduction measures and to encourage trip demand measures for major nonresidential projects.

Circulation and Scenic Highway Element

Policy CI-1.3: Provide safe, convenient and comfortable routes for walking, bicycling, and public transportation that encourage increased use of these modes of transportation, enable

convenient travel as part of daily activities, improve the public welfare by addressing a wide array of health and environmental problems, and meet the needs of all users of the streets, including children, older adults, and people of disabilities.

Policy CI-2.1: Make efficient use of existing transportation facilities and strive to reduce the total number of vehicle miles traveled through the arrangement of land uses, improved facilities for non-automobile modes, and enhanced integration of various transportation systems.

Policy CI-2.3: Develop, implement, and update as necessary Citywide multi-modal transportation impact analysis (TIA) guidelines that are complimentary with Santa Clara Valley Transportation Authority's (VTA's) TIA guidelines and require development projects to mitigate and reduce their respective traffic, multi-modal, and parking impacts.

Policy CI-2.8: Design new local streets to reduce travel distance, promote alternative modes, and provide a more even distribution of traffic.

Policy CI-2.12: Focus future improvements on the most congested intersections to maintain an acceptable level of mobility for all modes of transportation.

Action CI-2.7: Require a transportation analysis for all development projects resulting in 25 or more net new peak-hour trips. As appropriate, the analysis shall identify potential impacts to intersection and roadway operations, project access, and alternative travel modes, and shall identify feasible improvements or project modifications to reduce or eliminate impacts. City staff shall have the discretion to only require focused studies regarding access, sight distance, and other operational and safety issues, or to require detailed studies that generate fewer peak hour trips.

Action CI-2.10: Require new development or redevelopment projects to dedicate property to accommodate needed roadway improvements.

Policy CI-4.1: Coordinate with the Valley Transportation Authority to increase service range and frequency within the City per VTA's Transit Sustainability Policy.

Policy CI-4.2: Install transit improvements (such as shelters, benches, and schedules) to improve service, increase safety, and maintain traffic flow on streets serving as transit routes.

Policy CI-4.3: Encourage the public school districts, private schools, recreation groups or other operators to develop a local bus system and to expand ride-sharing activities that will help to reduce school-generated vehicle traffic in neighborhoods and on City streets. Bussing should

be one of the first measures considered, along with walking and biking, to reduce school generated traffic before substantial roadway capacity enhancements are implemented.

Policy CI-4.4: Investigate the feasibility of a local shuttle service within Saratoga to reduce local traffic volumes on City streets and overall parking demand. The feasibility study shall identify potential routes and funding sources.

Action CI-4.1: Require development projects to dedicate right-of-way for purposes of constructing bus turnouts and/or bus shelter pads on major and minor arterial roadways as appropriate.

Action CI-4.5: Provide information to the public on available alternative transportation choices and routes.

Policy CI-5.1: Develop and maintain a comprehensive and integrated system of bikeways that promote bicycle riding for commuting and recreation.

Policy CI-5.2: Integrate the City of Saratoga bikeways system with the bikeways system of adjacent communities, where economically feasible.

Policy CI-5.3: Pursue the expansion and continuation of the multi-use path along the Union Pacific Railroad alignment (Joe's trail) east of Saratoga Avenue and west of Saratoga-Sunnyvale Road that will link the Stevens Creek Recreational Trail in Cupertino with the Los Gatos Creek Trail in Los Gatos.

Policy CI-5.4: Pursue other potential rights-of-way such as Santa Clara Valley Water District and utility easements for bicycle, pedestrian, and/or equestrian trail development.

Policy CI-5.5: Provide safe and direct pedestrian routes and bikeways between and through residential areas linking transit centers and important community centers such as local schools facilities and the Village.

Policy CI-5.6: Improve pedestrian and bicycle access to all public and private schools to enhance safety.

Policy CI-5.8: Develop a set of practical and realistic transportation demand management (TDM) measures that can be used by employers in the City to reduce the number of single-occupant vehicle trips. These measures would encourage ride-sharing and transit alternatives.

Action CI-5.7: Require new development projects and redevelopment projects to dedicate right-of-way and/or provide improvements to accommodate bicycle lanes on streets identified on Figure C-5.

Policy CI-7.4: Encourage the use of carpools and vanpools by providing preferential spaces as appropriate.

3. Impacts and Mitigation Measures

This section analyzes environmental impacts related to GHG emissions that could result from the implementation of the project. The GHG related policies, actions, and implementation measures for the proposed project are essentially the same as previous existing policies, actions, and implementation measures in the General Plan; therefore, no GHG related impacts from updating the policies, actions, or implementation measures of the General Plan would occur. Future residential development under the project would be directly supported by updated Policy HE-1.3, which incentivizes efficient buildings and conservation (see *Chapter III, Project Description*) and the City's CAP. Other policies related to GHG emissions would not directly support future residential development but would provide GHG benefits on a citywide scale (e.g., improving public transit and encouraging non-automobile modes of transportation).

The section begins with the significance criteria that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project.

a. Significance Criteria

According to the CEQA Guidelines Appendix G, implementation of the project would result in a significant GHG impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs.

b. Analysis Approach

The following sections provide an evaluation and analysis of the potential impacts for the planning area for each of the criteria of significance listed above and potential cumulative impacts.

On April 20, 2022, the BAAQMD adopted updated CEQA thresholds of significance for determining whether a proposed project would have a significant impact related to GHG emissions.¹⁶ Climate change is not caused by any individual emissions source but by a large number of sources around the world emitting GHGs that collectively create a significant cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a “cumulatively considerable” contribution to the significant cumulative impact on climate change. The BAAQMD’s updated GHG thresholds of significance are intended to assist public agencies in determining whether proposed projects would make a cumulatively considerable contribution to global climate change, as required by CEQA.

For community-wide planning documents (e.g., general plans), BAAQMD recommends that local governments evaluate such plans based on whether they will be consistent with the State’s long-term climate action goals. The BAAQMD strongly recommends that local governments adopt qualified climate action plans to document specific strategies and implementation measures to achieve the statewide climate action goals. The BAAQMD recommends that local governments demonstrate compliance with at least one of the plan-level thresholds for GHG emissions summarized in Table IV.F-3, below. A proposed plan that meets at least one of these thresholds will support the State’s ability to achieve its climate goals and thus will have a less-than-significant impact on GHG emissions.

TABLE IV.F-3 BAAQMD’S GHG THRESHOLDS OF SIGNIFICANCE FOR PLANS (MUST INCLUDE A OR B)

Option	Threshold
A	Meet the State’s goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045.
B	Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

Source: Bay Area Air Quality Management District (BAAQMD), 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans, April.

c. Analysis and Findings

(1) Generate GHG Emissions (Criterion 1)

Residential development under the project could result in a cumulatively considerable increase in GHG emissions. The City’s CAP meets the criteria under State CEQA Guidelines Section

¹⁶ Bay Area Air Quality Management District (BAAQMD), 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans, April.

15183.5(b) and identifies measures that can be implemented to achieve the statewide GHG emission reduction goal of 40 percent below 1990 levels by 2030 (consistent with SB 32) and support the State's long-term goals of achieving carbon neutrality by 2045 (consistent with Executive Order B-55-18) and reducing GHG emissions 80 percent below 1990 levels by 2050 (consistent with Executive Order S-3-05). Future residential development in the planning area would be required to demonstrate consistency with the GHG reduction measures identified in the CAP, such as requiring the use of electric heat pump technology instead of natural gas for space and water heating; therefore, future development would not result in a cumulatively considerable contribution to global climate change. In addition, the City can support GHG reductions from future developments by incentivizing efficient buildings and conservation in accordance with updated General Plan Policy HE 1.3.

Overall, consistency with the City's CAP and implementation of the updated General Plan policies related to GHG emissions would comply with the BAAQMD's recommended plan-level thresholds of significance and future development under the project would have a less-than-significant impact related to GHG emissions.

(2) Greenhouse Gas Plans, Policies, or Regulations (Criterion 2)

The 2017 Climate Change Scoping Plan identifies numerous regulations and programs the State will use to achieve its 2030 climate action goal, and substantially advance toward its 2050 climate action goal. As discussed above in *Greenhouse Gas Emissions (Criterion 1)*, implementation of the City's CAP would ensure that future development under the project supports the State's long-term climate action goals. In addition, implementation of updated General Plan Policy HE-1.3 would help to reduce GHG emissions associated with building energy and water use. As a result, future residential development under the project would be consistent with, and would not hinder, the 2017 Scoping Plan and associated regulations and programs to achieve statewide climate action goals. The project would have a less-than-significant impact on applicable plans and regulations adopted for the purposes of reducing the emissions of GHGs.

d. Cumulative Greenhouse Gas Impacts

GHG impacts are, by their nature, cumulative impacts because one project by itself cannot significantly contribute to or cause global climate change. The thresholds of significance used in this analysis pertain to a project's contribution to cumulative impacts and whether the project's contribution is cumulatively considerable. See *Analysis and Findings* above for more discussion.

G. HAZARDS, HAZARDOUS MATERIALS, AND WILDFIRES

Hazards include man-made and natural conditions that may pose a threat to human health, life, property, or the environment. Hazardous materials can present health hazards for humans and the environment. These health hazards can result during the manufacture, transportation, storage, use, or disposal of such materials if not handled properly. Hazards can also result from wildfires and air traffic accidents.

This section analyzes impacts associated with exposure to hazards, hazardous materials, and wildfires within the planning area from policies and residential development under the project. Specifically, the analysis addresses impacts related to hazardous materials use and transportation, the accidental release of hazardous materials, new development or re-development on contaminated sites, interference with emergency response and evacuation plans, and the risk of exposure to wildland fires. See *Section IV.M, Public Services*, for a discussion of fire protection services, *Section IV.H, Hydrology and Water Quality*, for a discussion of flood hazards and *Section IV.E, Geology and Soils*, for a discussion of seismic and landslide hazards.

1. Setting

a. Hazardous Materials Transport, Use, or Disposal

A hazardous material is any substance or material that could adversely affect human health or the environment. Hazardous materials are commonly used in the planning area including uses for construction, service/maintenance industries, commercial businesses, pest/weed management, agriculture, medical facilities, schools, and households. Hazardous wastes are hazardous materials that no longer have practical use or are discarded or released into the environment. Hazardous wastes can be liquids, solids, or contained gases, and can be the by-products of manufacturing processes, used materials (e.g., used oil), or discarded unused commercial products (e.g., cleaning products or pesticides). Soil that is excavated and contains hazardous materials may also be a hazardous waste if it exceeds specific criteria outlined in California Code of Regulations (CCR) Title 22.

The U.S. Environmental Protection Agency (EPA) describes household hazardous waste as leftover household products that can catch fire, react, explode under certain circumstances, or that are corrosive or toxic. Household hazardous wastes include products such as paints, cleaners, oils, batteries, and pesticides.¹ Household hazardous waste generated in the planning area can be disposed of at facilities located in San Jose and San Martin, which are operated under the County

¹ U.S. Environmental Protection Agency (EPA), 2022a. Household Hazardous Waste. Available at: <https://www.epa.gov/hw/household-hazardous-waste-hhw>, accessed June 23, 2022.

of Santa Clara Household Hazardous Waste Program. Some specific types of household hazardous waste (e.g., batteries, used oil, and paint) can be dropped off at various locations designated on the County of Santa Clara's Household Hazardous Waste Program website.²

Medical facilities, including clinics, hospitals, professional offices, blood and plasma centers, and medical research facilities generate a wide variety of hazardous substances. These substances may include contaminated medical equipment or supplies, infectious biological matter, prescription medicines, and radioactive materials used in medical procedures. The County of Santa Clara Department of Environmental Health (DEH) implements the Medical Waste Management Program in the planning area through the implementation and enforcement of regulations that apply to the handling, storage, treatment, and disposal of medical waste.

Hazardous materials facilities (including hazardous waste generating facilities) within the planning area are permitted and inspected by the County of Santa Clara Hazardous Materials Compliance Division (HMCD) through their Hazardous Materials Programs, which includes the Hazardous Waste Program, Tiered Permitting Program, Underground Storage Tank (UST) Program, Aboveground Petroleum Storage Act (APSA) Program, Hazardous Materials Business Plan (HMBP) Program, and California Accidental Release Prevention (CalARP) Program. Additional information regarding the Hazardous Materials Programs is presented below under *Regional Agencies and Regulations*.

Although incidents can happen almost anywhere, certain areas of the planning area are at higher risk for inadvertent releases of hazardous materials. Locations near roadways that are frequently used for transporting hazardous materials (e.g., State Route (SR-) 85) and locations near facilities that use, store, or dispose of hazardous materials have an increased potential for a release incident, as do locations along freight railways. The transportation of hazardous materials within the Planning area is subject to a variety of federal, State, and local regulations as discussed below under *Regulatory Setting*. The Santa Clara County Fire Department (SCCFD) provides emergency response services for hazardous materials releases in the planning area.

b. Soil and Groundwater Contamination

In California, the status and location of hazardous materials release sites under regulatory oversight for assessment and/or remediation actions are reported on the State Water Resources Control Board (State Water Board) GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database. The GeoTracker database includes leaking USTs (LUSTs) and Cleanup Program sites. In addition to known LUST sites, it is not uncommon for

² County of Santa Clara, 2022a. Household Hazardous Waste Program. Available at: <https://hhw.sccgov.org/home>, accessed June 23, 2022.

older USTs to have been abandoned in place with no documentation of location or abandonment technique. Cleanup Program sites are undergoing investigation and/or cleanup due to spills and leaks of hazardous materials that were used by various businesses and industries (e.g., dry cleaners), which can include heavy metals, solvents, petroleum compounds, and other hazardous materials. The EnviroStor database includes properties such as industrial/commercial sites, school sites, military bases, and waste disposal sites that are known or suspected to be contaminated with some level of toxic substances. The HMCD has served as the local oversight agency for investigations and cleanup of petroleum releases from LUSTs through implementation of the Local Oversight Program and oversees the cleanup of properties contaminated by hazardous materials not exclusively associated with petroleum USTs through implementation of the Site Cleanup Program. The Santa Clara Valley Water District (SCVWD) served as the local oversight agency for LUST cases prior to HMCD.

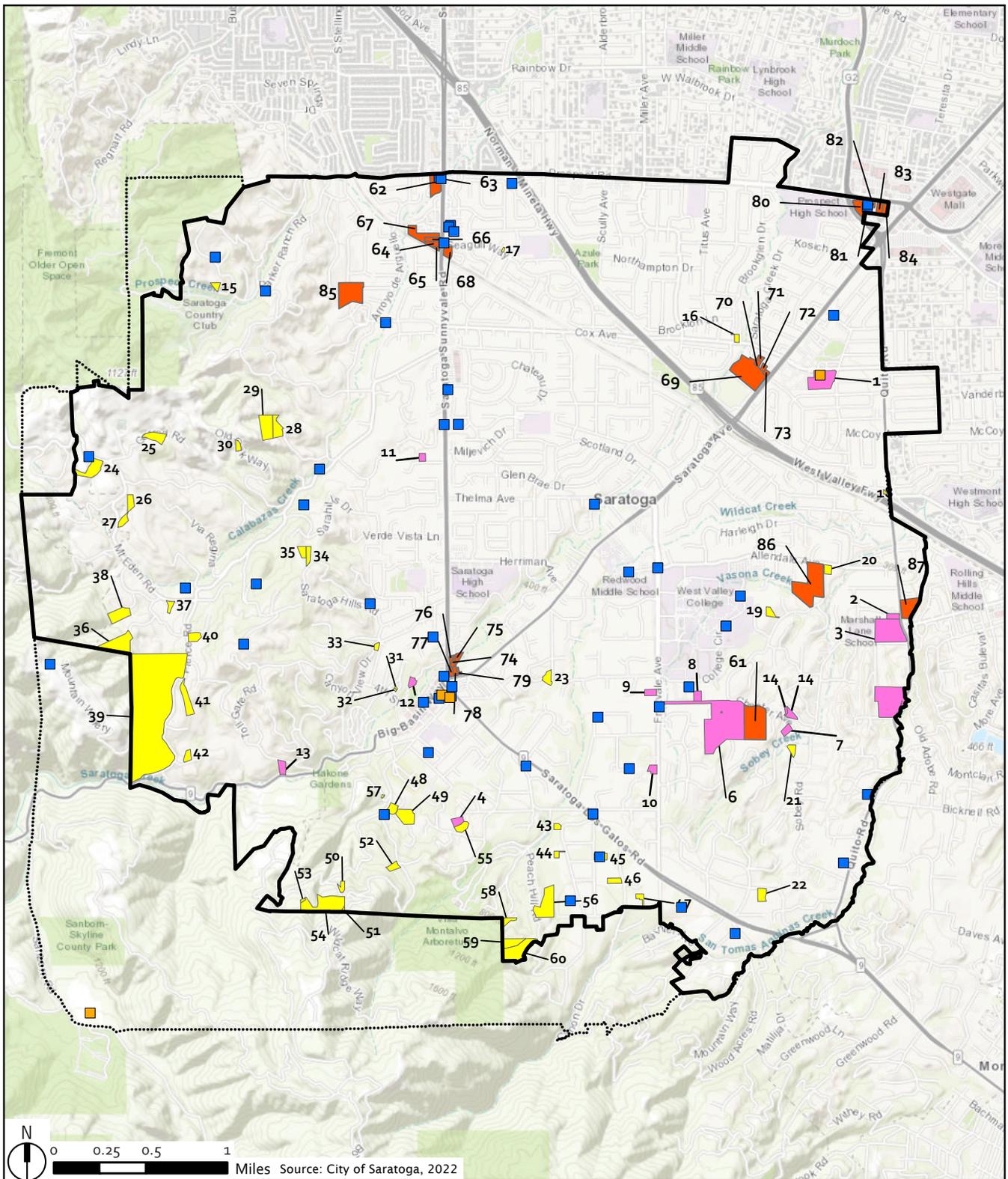
Hazardous materials release sites identified on GeoTracker and EnviroStor within the planning area are shown on Figure IV.G-1. Open sites are still undergoing investigation and/or remediation. Closed sites have completed investigation and/or remediation to the satisfaction of the regulatory agency(ies) providing oversight. In some cases, closed sites may be certified as having completed investigation and/or remediation; however, site management requirements or land use restrictions may be in place to ensure that residual contamination does not pose a risk to human health or the environment. In some cases, closed sites that do not have site management requirements or land use restrictions may have residual contamination that was considered acceptable at the time of case closure; however, the residual contamination could pose risks to human health or the environment based on more current information regarding contaminant exposure pathways (e.g., soil vapor intrusion) and toxicology, or if a change to a more sensitive land use is proposed (e.g., from industrial/commercial to residential).

As of June 2022, the GeoTracker database³ records identify 45 LUST sites and 9 Cleanup Program sites within the planning area. Of these sites, all of the LUST cases and five of the Cleanup Program cases are closed; the remaining four Cleanup Program cases are open. As of June 2022, the EnviroStor database⁴ records identify one site in the planning area, which is closed.

There are many parcels identified in the Housing Sites Inventory that are located in relatively close proximity to hazardous materials release sites in the planning area. Because hazardous materials contamination can migrate through groundwater and soil vapor, properties located near hazardous materials release sites can also be impacted by hazardous materials

³ State Water Board, 2022a. GeoTracker. Available at: <https://geotracker.waterboards.ca.gov/>, accessed June 23, 2022.

⁴ Department of Toxic Substances Control (DTSC), 2022. EnviroStor. Available at: <https://www.envirostor.dtsc.ca.gov/public/>, accessed June 23, 2022.



- Saratoga City Limits
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Status: Closed
- Status: Open

Figure IV.G-1
Hazardous Materials Release Sites
Saratoga Housing and Safety Elements, and 2040 General Plan Updates EIR

contamination. There are two open Cleanup Program sites in the downtown area of the city that are located at 14440 Big Basin Way (former Hillview Cleaners) and 20472 Saratoga-Los Gatos Road (former Chevron gas station and current Kerful Cleaners). Both Cleanup Program sites have been identified as being impacted by chlorinated volatile organic compounds (VOCs) including tetrachloroethylene (PCE), a common dry-cleaning solvent. Based on the information available on GeoTracker for these Cleanup Program sites,^{5,6} it is not clear whether the environmental condition of nearby parcels identified in the Housing Sites Inventory (e.g., Housing Sites 74 through 79 on Figure IV.G-1) have been affected by these hazardous materials releases. Concentrations of PCE have been detected in Saratoga Creek near downtown Saratoga, which suggests that PCE impacted groundwater has migrated away from the release sites and is seeping into the creek at least intermittently.⁷

Five of the parcels identified in the Housing Sites Inventory were identified as hazardous materials release sites and are discussed further below.

(1) 15230 Pepper Lane

The property located at 15230 Pepper Lane (identified as Housing Site 45 on Figure IV.G-1) is a currently vacant site which has a closed LUST case. According to a Case Closure Letter⁸ issued by SCVWD, a 500-gallon gasoline UST was removed from the property in 1994, and soil samples initially collected from beneath the UST contained detectable concentrations of gasoline; however, deeper soil samples that were subsequently collected did not contain detectable concentrations of gasoline. Soil excavated during the UST removal activities was placed back in the excavation without being characterized. The Case Closure Letter indicated that groundwater does not appear to be threatened by the uncharacterized soil reused as excavation backfill due to the low levels of contamination initially detected in the UST excavation, the presence of clayey soil, and the depth to groundwater being over 100 feet. While there are no site management requirements for this property, it is possible that there could be residual impacts from gasoline in soil and soil vapor beneath this property.

⁵ State Water Board, 2022b. Geotracker Webpage for Hillview Cleaners (SLT2O313204), 14440 Big Basin Way, Saratoga, CA 95070, Available at: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SLT2O313204, accessed July 21.

⁶ State Water Board, 2022c. Geotracker Webpage for 20472 Saratoga-Los Gatos Road (T10000012085), 20472 Saratoga-Los Gatos Road, Saratoga, CA 95070, Available at: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000012085, accessed July 21.

⁷ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

⁸ Santa Clara Valley Water District (SCVWD), 1994. Underground Storage Tank Case Closure- Kibby Residence, 15230 Pepper Lane, Saratoga, CA 95070, November 15.

(2) 14500 Fruitvale Avenue

The property located at 14500 Fruitvale Avenue (identified as Housing Site 6 on Figure IV.G-1) is currently occupied by the Saratoga Retirement Community. According to a Case Closure Letter⁹ issued by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB), four underground concrete vaults of 7,500-gallon capacity were removed from an area adjacent to a boiler plant on the property in 1997. Two of the vaults had been used to store bunker oil and one had been used to store a metal diesel tank. The use of the remaining concrete vault was not specified in the Case Closure Letter. Concentrations of diesel, bunker oil, gasoline, and gasoline-related VOCs including toluene, ethylbenzene, and xylene were detected in soil samples collected in the area of the concrete vaults. The Case Closure Letter indicated that adequate information had been submitted to consider the case closed and that no further action was necessary at the subject site. While there are no site management requirements for this property, it is possible that there could be residual impacts from petroleum hydrocarbons and associated VOCs in soil and soil vapor beneath this property.

(3) 18764 Cox Avenue

The property located at 18764 Cox Avenue (identified as Housing Site 1 on Figure IV.G-1) is currently occupied by a retail shopping center known as Quito Village. This property is an open Cleanup Program site which has been undergoing assessment as of February 2021, with contaminants of concern including benzene and PCE.¹⁰ According to a Corrective Action Plan (CAP)¹¹ prepared for this property in 2022, it had historically been occupied by orchards from at least 1939 to at least 1948. A gas station operated at the northeast corner of the property from about 1956 or 1958 until the late 1960s. A dry cleaners operated on the property beginning in 1962, which utilized PCE as a cleaning agent until 2009. Contamination from benzene and PCE has been identified in soil vapor beneath the property, and the CAP proposes the installation of soil vapor extraction systems and vapor intrusion mitigation systems to reduce and mitigate risk associated with elevated PCE and benzene for the planned residential redevelopment of the property.¹² The CAP was approved by the HMCD in April 2022.¹³ A Site Management Plan (SMP)

⁹ San Francisco Bay Regional Water Quality Control Board (SFRWQCB), 1997. Transmittal of Closure Letter and Summary, Saratoga Retirement Community, 14500 Fruitvale Avenue, Saratoga, CA, March 4.

¹⁰ State Water Board, 2022d. Geotracker Webpage for SHP Quito Village (T10000016861), 18764-18850 Cox Avenue, Saratoga, CA 95070, Available at: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000016861, accessed July 6.

¹¹ WSP, 2022. Corrective Action Plan (CAP) Plan, SHP Quito Village 18764-18850 Cox Avenue, Saratoga, CA, February 16.

¹² WSP, 2022. Corrective Action Plan (CAP) Plan, SHP Quito Village 18764-18850 Cox Avenue, Saratoga, CA, February 16.

¹³ Hazardous Materials Compliance Division (HMCD), 2022a. Letter Re: SHP Quito Village 18764-18850 Cox Avenue, Saratoga, CA, April 12.

and SMP Supplement were also prepared for the property in 2022 and were conditionally approved by the HMCD in June 2022. The SMP Supplement proposes utilizing the same technical and operational requirements described in the SMP to manage known and unknown contamination and to reduce contaminant exposures to construction workers and the public during the residential phase of the planned redevelopment project.¹⁴

(4) 18560 Prospect Road

The property located at 18560 Prospect Road (identified as Housing Site 81 in Figure IV.G-1) is currently occupied by a car wash with a gas station which has two closed LUST cases. According to a Case Closure Letter¹⁵ issued by the SCVWD in 1996, three 10,000-gallon gasoline USTs were removed from the property in 1994, and concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) were detected in soil samples; however, due to the low levels of contamination detected beneath the USTs, the SCVWD indicated that there was not substantial evidence of a significant release, and therefore further action was not required at the time. In the early 2000s, additional investigation of the property was performed and contamination from gasoline and BTEX was identified in soil and groundwater. Periodic groundwater monitoring was performed for several years, and a Case Closure Letter¹⁶ was issued by the DEH in 2012. The Case Closure Letter indicated that the gasoline release at the property is likely associated with the USTs removed in 1994, and that natural attenuation will continue to decrease contaminant concentrations over time. The Case Closure Letter also indicated that there are site management requirements due to residual contamination that could pose an unacceptable risk under certain site development activities, such as grading activities, excavation, or installation of water wells.. The site management requirements are that DEH and the appropriate planning and building departments shall be notified prior to any changes in land use, grading/excavation, or installation of water wells at the property. The notification must include a statement that residual contamination exists on the property and must list all mitigation actions, if any, necessary to ensure compliance with the site management requirements.

(5) 12015 Saratoga Sunnyvale Road

The property located at 12015 Saratoga Sunnyvale Road (identified as Housing Site 63 on Figure IV.G-1) is currently occupied by a gas station which has two closed LUST cases. According to a

¹⁴ Hazardous Materials Compliance Division (HMCD), 2022b. Letter Re: SHP Quito Village 18764-18850 Cox Avenue, Saratoga, CA, June 21.

¹⁵ Santa Clara Valley Water District (SCVWD), 1996. Underground Storage Tank Case Closure- Westgate Classic Car Wash, 18560 Prospect Road, Unincorporated, CA, May 15.

¹⁶ Department of Environmental Health (DEH), 2012. Fuel Leak Site Case Closure Westgate Classic Carwash, 18560 Prospect Road, Saratoga, CA, May 23.

Case Closure Letter¹⁷ issued by the SCVWD in 2000, fuel piping and dispensers were replaced at the property in 1996, and excavation of contaminated soil "hot spots" was performed. In 1999 five borings were advanced at the property and concentrations of gasoline, diesel, and BTEX were detected in soil samples. According to the Case Closure Letter, the SCVWD concluded that the continuing threat to groundwater, human health and the environment from the residual contamination did not exist and closure was recommended. In the 2000's, additional investigation of the property was performed and contamination from gasoline, diesel, and BTEX was identified in soil and groundwater. Periodic groundwater monitoring was performed for several years, and a Case Closure Letter¹⁸ was issued by the DEH in 2010. The Case Closure Letter indicated that there are site management requirements due to residual contamination that could pose an unacceptable risk under certain site development activities, such as grading activities, excavation, or installation of water wells. The site management requirements are that DEH and the appropriate planning and building departments shall be notified prior to any changes in land use, grading/excavation, or installation of water wells at the property. The notification must include a statement that residual contamination exists on the property and must list all mitigation actions, if any, necessary to ensure compliance with the site management requirements.

(6) Previously Unidentified Contamination

In addition to the known hazardous materials release sites in the planning area discussed above, there is the potential for previously unidentified hazardous materials contamination to be present in the planning area, particularly in areas of past or existing commercial or industrial land use; areas adjacent to or intersected by existing/former railroad tracks (railroad tracks are commonly contaminated with heavy metals, petroleum hydrocarbons and polycyclic aromatic hydrocarbons [PAHs]); and areas adjacent to major roadways (where aerially deposited lead from past vehicle emissions can be present in shallow soil). Although industrial land uses are not currently present in the planning area, the city's history includes a brief industrial era which included a furniture factory, a tannery, and paper mills.¹⁹ There is also the potential for previously unidentified contamination to be present in the planning area due to past agricultural land uses and placement of fill materials as discussed below.

There is a long history of agricultural production in the planning area. Starting in the late 1860's, the planting of deciduous fruit trees increased until it became the chief means of livelihood for the whole region. During the late 1880's, the hillsides were found to be conducive to viticulture

¹⁷ Santa Clara Valley Water District (SCVWD), 2000. Fuel Leak Site Case Closure -Unocal No. 6859, 12015 Saratoga Sunnyvale Road, Saratoga, CA, January 24.

¹⁸ Department of Environmental Health (DEH), 2010. Fuel Leak Site Case Closure ConoccoPhillips # 6859, 12015 Saratoga-Sunnyvale Road, Saratoga, CA, February 11.

¹⁹ City of Saratoga, 2019. Emergency Operations Plan, Adopted June 19.

and many wineries were established. In the mid-1950's orchards began giving way to residential subdivisions; however, some vineyards and a few orchards do remain in the planning area.²⁰ Agricultural activities typically include the storage and periodic application of pesticides, herbicides, and fertilizers, as well as the storage and use of fuels and solvents. The infiltration of these substances may leach into local groundwater supplies, presenting an elevated risk of groundwater contamination. Residual impacts from agricultural chemicals such as organochlorine pesticides (OCPs) and heavy metals (e.g., lead and arsenic) could also be present in shallow soil in parts of the planning area that were historically used for agriculture.

Soil and groundwater contamination can be present in areas where fill materials have been placed. Fill materials from unknown sources could be contaminated with various hazardous materials (e.g., pesticides, heavy metals, petroleum compounds). Fill materials historically placed in low lying areas (particularly near historically industrial areas) often contain contaminants such as heavy metals, petroleum compounds, and PAHs that may be associated with the presence of construction rubble/debris in the fill or the dumping of hazardous waste byproducts from past industrial/manufacturing operations.

c. Hazardous Building Materials

Hazardous materials are commonly found in building materials (particularly within older buildings) that may be affected by demolition and renovation activities under the project. The planning area includes many buildings that may contain hazardous building materials such as lead-based paint, asbestos containing materials (ACMs), polychlorinated biphenyls (PCBs) containing materials and equipment, and mercury containing lights and devices.

Asbestos is a known human carcinogen that was commonly used in building materials until the early 1980's. In 1989, the EPA issued a final rule banning most asbestos-containing products. In 1991, this regulation was overturned and as a result of the Court's decision, the 1989 asbestos regulation only bans new uses of asbestos in products that would be initiated for the first time after 1989 and bans the following specific asbestos-containing products: flooring felt, rollboard, and corrugated, commercial, or specialty paper.²¹ Asbestos-containing products remain in use within the United States, and include some roof and non-roof coatings and other asbestos-containing building materials.²² Section 19827.5 of the California Health and Safety

²⁰ City of Saratoga, 2019. Emergency Operations Plan, Adopted June 19.

²¹ U.S. Environmental Protection Agency (EPA), 2022b. Asbestos Ban and Phase-Out Federal Register Notices. Available at: <https://www.epa.gov/asbestos/asbestos-ban-and-phase-out-federal-register-notice>, accessed June 1, 2022.

²² U.S. Environmental Protection Agency (EPA), 2017. Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos, February. Available at: <https://www.epa.gov/sites/production/files/2017-02/documents/asbestos.pdf>, accessed June 1, 2022.

Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

Prior to 1978, lead compounds were commonly used in exterior and interior paints. Due to its health effects, the application of lead-based paint on residential structures was banned in 1978; however, lead-based paint can be found in commercial or industrial structures, regardless of construction date (because its use is still allowed in commercial and industrial applications).²³

PCBs were historically used as coolants and lubricants in transformers, capacitors, heating/cooling equipment, and other electrical equipment, and were also used as plasticizers in paints, plastics, rubber products, and caulking. PCBs have been demonstrated to cause cancer and a variety of other adverse health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system. Although manufacturing of PCBs has been banned in the United States since 1979, they may still be found in older electrical equipment and other building materials such as light ballasts and caulking. PCBs or PCBs-contaminated items require proper off-site transport and disposal at a facility that can accept such wastes, in accordance with the Toxic Substances Control Act (TSCA) of 1976 and other federal and State regulations. PCBs in manufactured materials such as caulking may also move directly into adjoining materials, particularly porous materials such as wood, concrete, and other types of masonry.²⁴

The EPA has indicated that there was potential widespread use of PCB-containing building materials in buildings built or renovated between about 1950 and 1979. Prior to removal, EPA recommends PCB testing of caulk and other building materials that are going to be removed to determine what protections are needed during removal and to determine proper disposal requirements.²⁵

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials (including mercury, a heavy metal) are regulated as “universal

²³ Department for Toxic Substances Control (DTSC), 2006. Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers. June 9 (Revised).

²⁴ U.S. Environmental Protection Agency (EPA), 2015a. PCBs in Building Materials – Questions & Answers, July 28. Available at: https://www.epa.gov/sites/production/files/2016-03/documents/pcbs_in_building_materials_questions_and_answers.pdf, accessed June 1, 2022.

²⁵ U.S. Environmental Protection Agency (EPA), 2015b. Practical Actions for Reducing Exposure to PCBs in Schools and Other Buildings, Guidance for school administrators and other building owners and managers, July 28. Available at: https://www.epa.gov/sites/production/files/2016-03/documents/practical_actions_for_reducing_exposure_to_pcbs_in_schools_and_other_buildings.pdf, accessed June 1, 2022.

wastes” by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

d. Airport Operations Hazards

Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Other airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the regulated surfaces surrounding an airport. The planning area is not located within any protected airspace zones defined by the Santa Clara County Airport Land Use Commission (ALUC).²⁶ San Jose International Airport is the closest airport to Saratoga, located approximately six miles northeast of the city; no portions of the planning area are located within the Airport Influence Area.²⁷ The city does not support any heliports, as described in the Heliport Land Use Compatibility Plan.²⁸ The nearest helipad locations are at Kaiser Hospital in Santa Clara (3 miles north), Valley Medical Center in San Jose (3.5 miles northeast), and Good Samaritan Hospital in San Jose (2.5 miles east).

e. Fire Risk in Wildland Areas

Saratoga is susceptible to wildland fires due to the steep topography, abundant fuel load, and climatic conditions, particularly in the western and southern portions of the planning area. The areas most susceptible to wildfire hazards are located west of Saratoga-Sunnyvale Road and south/southwest of Saratoga-Los Gatos Road (SR-9). Based on the fire hazard severity zone mapping prepared by the California Department of Forestry and Fire Protection (CAL FIRE), much of these portions of the planning area are identified as very high fire hazard severity zones. There are also areas identified by CAL FIRE as very high fire hazard severity zones on the north side of Saratoga-Los Gatos Road, and there are areas in the southern and western portion of the planning area identified by CAL FIRE as high and moderate fire hazard severity zones.^{29,30} As a result of this condition, the City (in coordination with CAL FIRE) has established a Wildland-Urban Interface (WUI) zone, which covers a majority of the areas within the city that have moderate to

²⁶ County of Santa Clara, 2022b. Airport Land Use Commission. Available at: <https://www.sccgov.org/sites/dpd/Commissions/ALUC/Pages/ALUC.aspx>, accessed June 23, 2022.

²⁷ Windus, Walter B., 2011. Comprehensive Land Use Plan for San Jose International Airport, Santa Clara County Airport Land Use Commission, Adopted May 25, 2011, Amended November 16, 2016.

²⁸ Windus, Walter B., 2015. Heliport Land Use Compatibility Plan, Santa Clara County Airport Land Use Commission, October 28.

²⁹ California Department of Forestry and Fire Protection (CAL FIRE), 2008. Very High Fire Hazard Severity Zones in LRA, Saratoga, October 8.

³⁰ California Department of Forestry and Fire Protection (CAL FIRE), 2007. Fire Hazard Severity Zones in SRA, Saratoga, October 8

very high fire hazard potential.³¹ The WUI zone and areas of moderate to very high fire hazard potential as mapped by CAL FIRE are depicted in Figure IV.G-2. Many of the parcels listed in the Housing Sites Inventory are located in the WUI zone, including the majority of the vacant parcels listed in the Sites Inventory.

As a result of potential fire hazards in Saratoga, special fire protection measures and planning are necessary within the WUI zone. Implementation Measure SAF-4.2b of the project requires that fuel load management activities be conducted within the city's WUI areas to reduce fire potential on public and private properties and increase fire response effectiveness. This is further implemented through Section 16-20.150 of the Saratoga Municipal Code which contains amendments to Chapter 49 of the Fire Code and includes requirements for WUI areas. Some of the requirements are related to hazardous vegetation and fuel management, defensible space, fire protection water supplies, and ignition source control (e.g., prohibition of fireworks). Article 16-60 (Early Warning Fire Alarm System) of the Municipal Code identifies situations which require that early warning fire alarm systems need to be installed within the WUI zone. In the planning area, the County of Santa Clara has similar requirements.

f. Emergency Operations and Evacuation Plans

The City's Emergency Operations Plan (EOP)³² is an all-hazards document describing the City's incident management organization, compliance with relevant legal statutes, other relevant guidelines, community engagement, continuity of government focus, and critical components of the incident management structure. The EOP establishes a jurisdictional incident management organization that coordinates and supports on-scene responses; establishes the overall operational concepts associated with the management of incidents, emergencies, crises, disasters, and catastrophes; and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies including earthquakes, wildland fires, floods, and public health issues.

The Safety Element³³ of the City's General Plan includes an Emergency Evacuation Plan which designates evacuation routes on local collector and arterial streets that should be followed to promote safe and efficient evacuation of residents out of the planning area. The designated evacuation routes are presented in Figure IV.G-3. The figure illustrates the routes of movement on local collector and arterial streets and designated evacuation routes that should be followed in order to promote safe and efficient evacuation of residents out of the city. The majority of the

³¹ City of Saratoga, 2013. 2013 Safety Element, Final Adopted Draft, February 20.

³² City of Saratoga, 2019. Emergency Operations Plan, Adopted June 19.

³³ City of Saratoga, 2013. 2013 Safety Element, Final Adopted Draft, February 20.

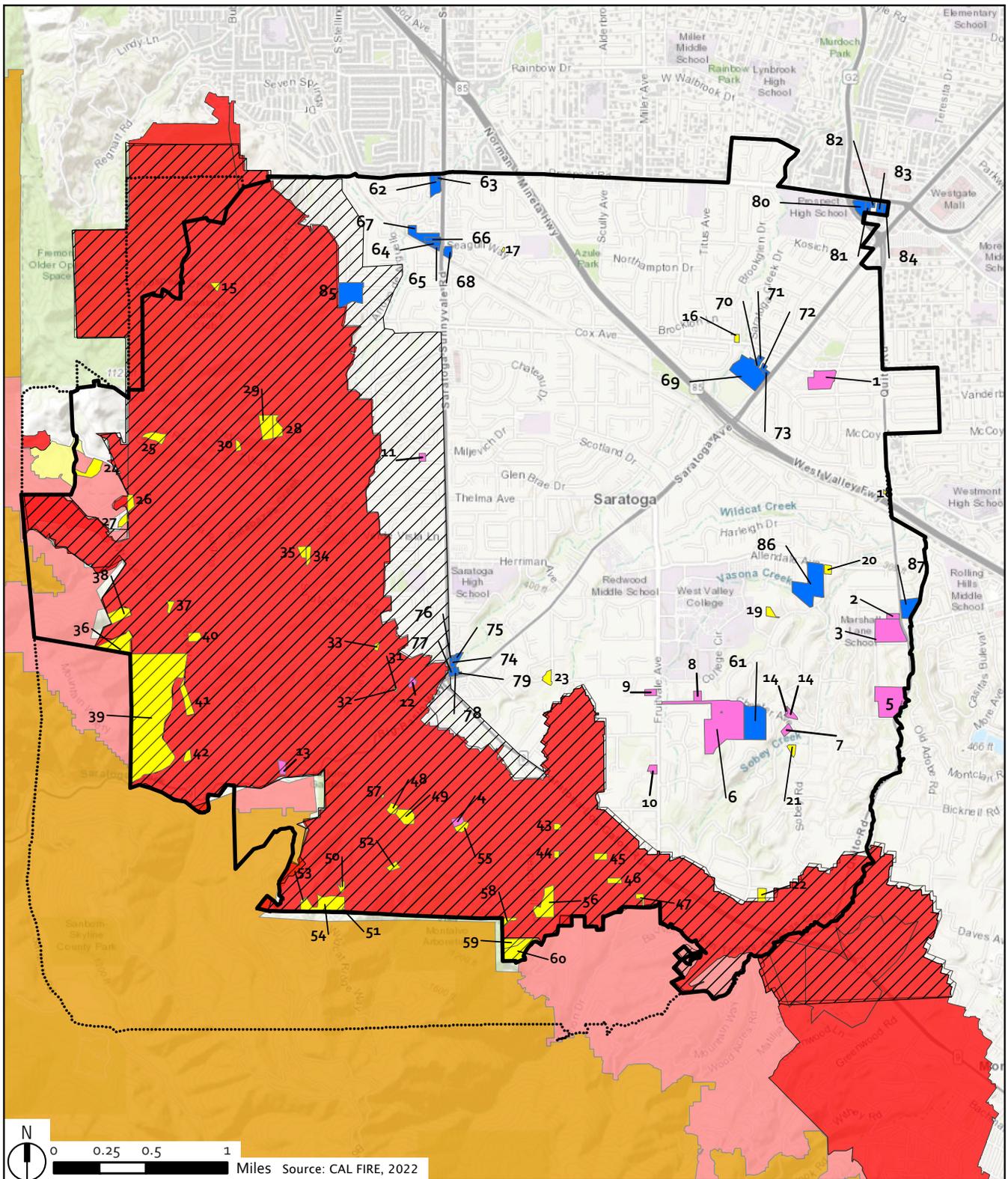
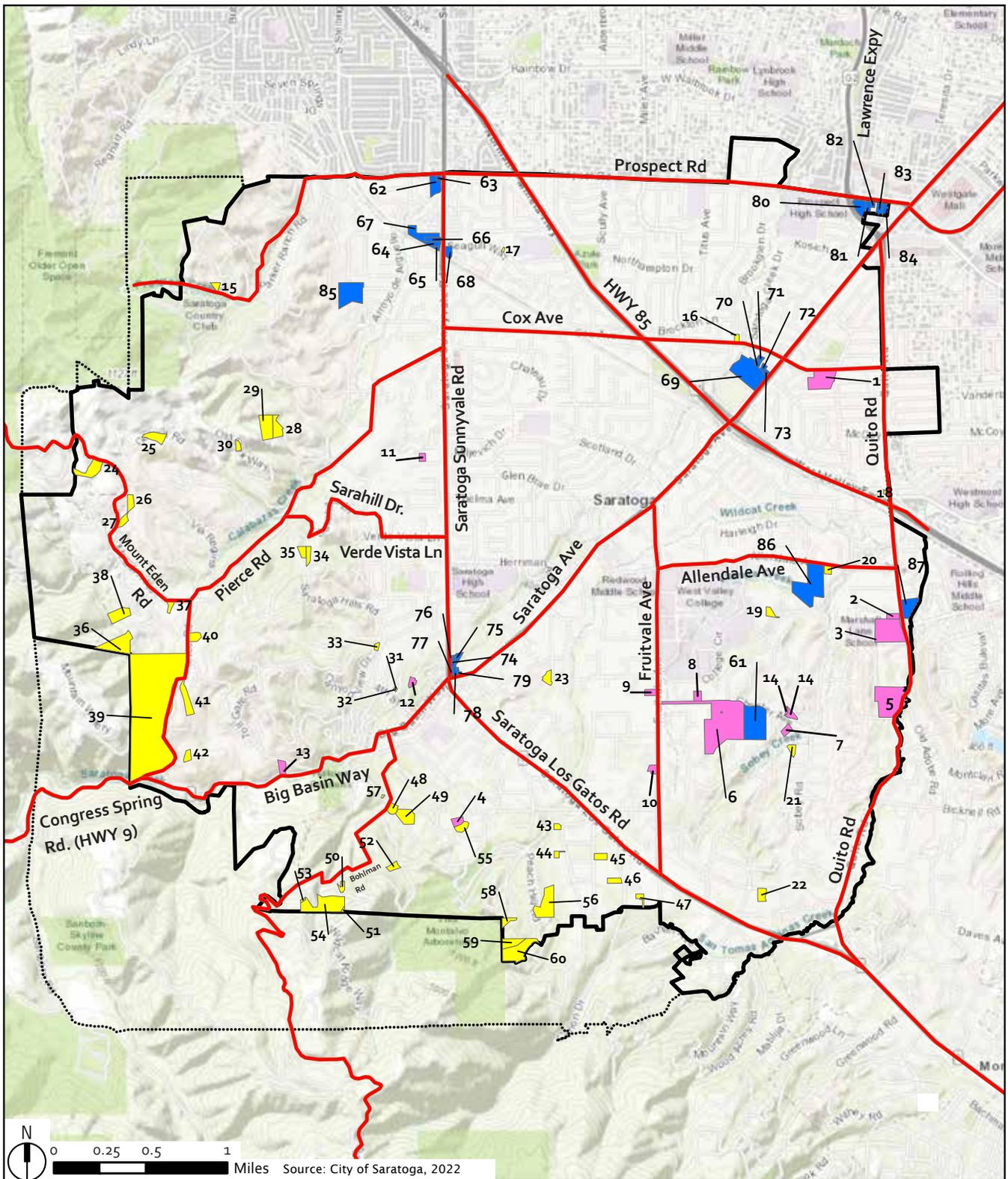


Figure IV.G-2
Fire Hazard Zones



- Evacuation Route
- Saratoga City Limits
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites

Figure IV.G-3
Evacuation Routes

evacuation routes are located in the area between Prospect Avenue and Saratoga-Los Gatos Road, and Saratoga-Sunnyvale Road and Quito Road, where the population is of a higher density than in the hillside areas. The Safety Element indicates that depending on the nature of the disaster, some access roads in the hillside areas may be closed or impeded, creating the necessity for residents to evacuate from the area along substandard emergency access roads or by helicopter.

The Emergency Evacuation Plan also identifies locations that can accommodate significant numbers of people as a shelter or gathering location. The American Red Cross typically establishes facility agreements with schools, churches, recreation halls and other large facilities to take in evacuees and provide mass care, feeding, and sheltering. It also provides casework services for those who have suffered losses, and physical and mental health services for the victims of disasters. According to the Red Cross, there are five pre-identified emergency shelter locations within Saratoga including Prospect High School, Redwood Middle School, Saratoga Community Center, Saratoga High School, and West Valley College. In the event of a major disaster or emergency these facilities would house residents, if deemed safe for public use. Following an earthquake, all facilities would be inspected prior to being designated as a shelter or gathering location. After an emergency/disaster event other facilities within Saratoga and surrounding areas may offer evacuation shelter services outside of those listed above.³⁴

2. Regulatory Setting

a. Federal Agencies and Regulations

(1) United States Environmental Protection Agency.

The United States EPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (CFR). The legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA); TSCA; the Superfund Amendments and Reauthorization Acts (SARA) of 1986; and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The EPA provides oversight for certain site investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.

(2) Resource Conservation and Recovery Act (RCRA)

RCRA is a combination of the first federal solid waste statutes and all subsequent amendments mandated by Congress. RCRA establishes the framework for a national system of solid waste

³⁴ City of Saratoga, 2013. 2013 Safety Element, Final Adopted Draft, February 20.

control. Subtitle D of the Act is dedicated to non-hazardous solid waste requirements, and Subtitle C focuses on hazardous solid waste. Solid waste includes solids, liquids and gases and must be discarded to be considered waste. Under Subtitle C of RCRA, EPA has developed a comprehensive program to ensure that hazardous waste is managed safely from the moment it is generated to its final disposal (cradle-to-grave) and may authorize states to implement key provisions of hazardous waste requirements in lieu of the federal government. If a state program does not exist, EPA directly implements the hazardous waste requirements in that state. Subtitle C regulations set criteria for hazardous waste generators, transporters, and treatment, storage and disposal facilities. This includes permitting requirements, enforcement and corrective action or cleanup.³⁵

(3) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA (or Superfund) created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The purpose of CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List. Long term cleanup actions can be conducted only at sites listed on the National Priorities List.³⁶

(4) Superfund Amendments and Reauthorization Act (SARA)

SARA reflected EPA's experience in administering the complex Superfund program during its first six years and made the following important changes and additions to the program:

1. Stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites;
2. Required Superfund actions to consider the standards and requirements found in other State and Federal environmental laws and regulations;
3. Provided new enforcement authorities and settlement tools;

³⁵ U.S. Environmental Protection Agency (EPA), 2022c. Resource Conservation and Recovery Act (RCRA) Overview, Available at: <https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview>, accessed June 3, 2022.

³⁶ U.S. Environmental Protection Agency (EPA), 2022d. Superfund: CERCLA Overview, Available at: <https://www.epa.gov/superfund/superfund-cercla-overview>, accessed June 3, 2022.

4. Increased State involvement in every phase of the Superfund program;
5. Increased the focus on human health problems posed by hazardous waste sites;
6. Encouraged greater citizen participation in making decisions on how sites should be cleaned up; and
7. Increased the size of the trust fund to \$8.5 billion.³⁷

(5) Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) provides the EPA with authority to require reporting, record-keeping, testing requirements, and restrictions relating to chemical substances and mixtures. The TSCA addresses the production, importation, use, and disposal of specific chemicals, including PCBs, asbestos, radon, and lead-based paint.

(6) Occupational Safety and Health Administration

Worker health and safety is regulated at the federal level by the Occupational Safety and Health Administration (OSHA). The federal Occupational Safety and Health Act of 1970 authorizes the states to establish their own safety and health programs with OSHA approval. Worker health and safety protections in California are regulated by the California Occupational Safety and Health Administration (Cal/OSHA), as described below. California standards for workers dealing with hazardous materials are contained in CCR Title 8; they include practices for all industries (General Industrial Safety Orders), as well as specific practices for construction. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to OSHA Hazardous Waste Operations and Emergency Response regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

(7) Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act (HMTA) of 1975 is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, through air, or in pipelines. It includes provisions for material classification, packaging, marking, labeling, placarding, and shipping documentation.

³⁷ U.S. Environmental Protection Agency (EPA), 2022e. The Superfund Amendments and Reauthorization Act (SARA), Available at: <https://www.epa.gov/superfund/superfund-amendments-and-reauthorization-act-sara>, accessed June 3, 2022.

(8) Hazardous Materials Transportation Uniform Safety Act of 1990

In 1990, Congress enacted the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) to clarify the maze of conflicting state, local, and federal regulations. Like the HMTA, the HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property. The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials.³⁸

(9) The Federal Motor Carrier Safety Administration

The Federal Motor Carrier Safety Administration (FMCSA) issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. The FMCSA enforces the transportation or shipment of hazardous materials by highway, and the Federal Motor Carrier Safety Regulations issued under various motor carrier safety acts.³⁹

(10) The Federal Railroad Administration

The Federal Railroad Administration (FRA) Hazardous Materials Division administers a safety program that oversees the movement of hazardous materials across the U.S. rail transportation system, including shipments transported to and from international organizations. The FRA enforces the transportation or shipment of hazardous materials by railroad, and the safety regulations issued under the Federal Rail Safety Act.⁴⁰

(11) Department of Transportation

The United States Department of Transportation (DOT) developed hazardous materials regulations, which govern the classification, packaging, communication, transportation, and handling of hazardous materials, as well as employee training and incident reporting. The

³⁸ Occupational Safety and Health Administration (OSHA), 2022. Transporting Hazardous Materials, Available at: <https://www.osha.gov/trucking-industry/transporting-hazardous-materials>, accessed June 3, 2022.

³⁹ U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, 2021. Federal HAZMAT Law, An Overview of Federal Laws for Hazardous Materials Transportation, September.

⁴⁰ U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, 2021. Federal HAZMAT Law, An Overview of Federal Laws for Hazardous Materials Transportation, September.

transportation of hazardous materials is subject to both RCRA and DOT regulations. The California Highway Patrol, California Department of Transportation (Caltrans), and the DTSC are responsible for enforcing federal and State regulations pertaining to the transportation of hazardous materials.

b. State Agencies and Regulations

(1) California Environmental Protection Agency/ Department of Toxic Substances Control

One of the primary agencies that regulates hazardous materials is the California Environmental Protection Agency (CalEPA). The State, through CalEPA, is authorized by the EPA to enforce and implement certain federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal regulation requirements. Most State hazardous materials regulations are contained in CCR Title 22. The DTSC, a department of the CalEPA, generally acts as the lead agency for soil and groundwater cleanup projects that affect public health and establishes cleanup levels for subsurface contamination that are equal to or more restrictive than federal levels. The DTSC has also developed land disposal restrictions and treatment standards for hazardous waste disposal in California.

(2) California Health and Safety Code

Health and Safety Code Division 20, Chapter 6.5 – Hazardous Waste Control is the primary hazardous waste statute in the State of California, and implements RCRA as a “cradle-to-grave” waste management system in the State of California. It specifies that generators have the primary duty to determine whether their wastes are hazardous and to ensure their proper management. It also establishes criteria for the reuse and recycling of hazardous wastes used or reused as raw materials. It exceeds Federal requirements by mandating source reduction planning, and a much broader requirement for permitting facilities that treat hazardous waste. It also regulates types of wastes and waste management activities that are not covered by Federal law with RCRA.

(3) California Code of Regulations

Most State and Federal regulations and requirements that apply to generators of hazardous waste are described in the CCR, Title 22, Division 4.5. Title 22 contains the detailed compliance requirements for hazardous waste generators, transporters, and treatment, storage, and disposal facilities. Because California is a fully authorized State according to RCRA, most RCRA regulations (those contained in 40 CFR 260 et seq.) have been duplicated and integrated into Title 22. However, because DTSC regulates hazardous waste more stringently than the EPA, the integration of California and Federal hazardous waste regulations that make up Title 22 do not

contain as many exemptions or exclusions as does 40 CFR 260. As with the California Health and Safety Code, Title 22 also regulates a wider range of waste types and waste management activities than does the RCRA regulations in 40 CFR 260. To aid the regulated community, California compiled the hazardous materials, waste and toxics-related regulations contained in CCR, Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 into one consolidated CCR Title 26 'Toxics.' However, the California hazardous waste regulations are still commonly referred to as Title 22.

(4) State Water Resources Control Board

Under the Porter-Cologne Water Quality Control Act (California Water Code, Division 7), the State Water Board has authority over State waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050[e]). The State Water Board enforces regulations on implementation of UST programs. It also allocates funding to eligible parties that request reimbursement of costs to clean up soil and groundwater pollution from UST leaks. The State Water Board also enforces the Porter-Cologne Water Quality Act through its nine Regional Water Quality Control Boards, including the SFRWQCB, which has jurisdiction over the planning area. The State Water Board issued the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity (Construction General Permit), Order 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-006-DWQ, which addresses management of hazardous materials at construction sites that disturb over one acre of land (described in detail under *Section IV.H, Hydrology and Water Quality*). This is a statewide permit that would be applicable to any projects that disturb over one acre of land within the planning area.

(5) California Department of Public Health

The transportation and disposal of medical wastes are closely regulated under the California Department of Public Health, which regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (California Health and Safety Code Sections 117600-118360). Local agencies can implement a medical waste management program pursuant to the Medical Waste Management Act.

(6) California Air Resources Board

This agency is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. CARB has developed State air quality standards and is responsible for monitoring air quality in conjunction with the local air districts.

(7) California Fire Code

The California Fire Code is Part 9 of Title 24, CCR, also referred to as the California Building Standards Code. The California Fire Code incorporates the latest International Fire Code of the International Code Council with necessary California amendments. The purpose of the California Fire Code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations.

(8) California Division of Occupational Safety and Health

Worker health and safety protections in California are regulated by Cal/OSHA. California standards for workers dealing with hazardous materials are contained in CCR Title 8; they include practices for all industries (General Industrial Safety Orders), as well as specific practices for construction. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to OSHA Hazardous Waste Operations and Emergency Response regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices. Like OSHA at the federal level, Cal/OSHA is the responsible State-level agency for ensuring workplace safety. The Cal/OSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. In the event that a site is contaminated, a Site Safety Plan is prepared and implemented to protect the safety of workers. Site Safety Plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from the contaminated site or building.

(9) California Department of Transportation

Caltrans has primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies. Caltrans is the first responder for hazardous material spills and releases that occur on highway and freeway lanes and intercity rail services.

(10) California Highway Patrol

The California Highway Patrol (CHP) is responsible for assuring the safe, convenient, and efficient transportation of people and goods on the state highway system. The CHP implements the Commercial Vehicle Safety Program, which includes enforcement, education, and partnerships to

minimize the disastrous results from collisions involving commercial vehicles. CHP's Commercial Vehicle section provides assistance regarding the safe operation and enforcement of commercial vehicles.

Common carriers are licensed by the CHP, pursuant to the California Vehicle Code, Section 32000. This section requires licensing every motor (common) carrier who transports, for a fee, more than 500 pounds of hazardous materials at one time and every carrier, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

Pursuant to Division 14.3 of the California Vehicle Code, the California Highway Patrol has adopted regulations for the safe operation of vehicles transporting materials that are poisonous if inhaled. These regulations designate the routes, safe stopping places, and inspection stops to be used when transporting bulk shipments of these materials.

Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance and responds to hazardous materials emergencies on roadways.

(11) California Public Utilities Commission

The California Public Utilities Commission (CPUC) oversees railroad safety (such as freight trains) and rail crossing safety (such as roadways over tracks) in California. The Railroad Operations and Safety Branch (ROSB) of the CPUC ensures that California communities and railroad employees are protected from unsafe practices on freight and passenger railroads by enforcing state and federal rail safety rules, regulations, and inspection efforts. The ROSB carries out proactive assessments of potential risks before they create dangerous conditions. Last, rail safety inspectors investigate rail accidents and safety related complaints, and recommend safety improvements to the Commission, railroads, and the federal government as appropriate.

CPUC staff also ensure that highway-rail and pathway-rail crossings are safely designed, constructed, and maintained. The Rail Crossings and Engineering Branch (RCEB) engineers investigate and evaluate requests to construct new rail crossings or modify existing crossings. They also investigate train-related incidents that occur at rail crossings, and complaints regarding rail crossings safety or conditions.

(12) California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE provides fire protection services for over 31 million acres of California's privately-owned wildlands. In addition, CAL FIRE provides varied emergency services in 36 of the State's 58

counties via contracts with local governments. Preventing wildfires in the State Responsibility Area (SRA) is a vital part of CAL FIRE's mission.⁴¹ As shown in Figure IV.G-2, CAL FIRE provides fire protection services to the southwestern portion of the planning area.

CAL FIRE has mapped fire threat potential throughout California. CAL FIRE ranks fire threat based on fire history, existing and potential fuel (natural vegetation), predicted flame length, embers, topography, and typical fire weather in the area. The rankings include moderate, high, and very high fire hazard severity zones. Additionally, CAL FIRE produced the 2018 Strategic Fire Plan for California, which contains goals, objectives, and policies to prepare for and mitigate for the effects of fire on California's natural and built environments.⁴²

c. Regional Agencies and Regulations

(1) San Francisco Bay Regional Water Quality Control Board

The Porter-Cologne Water Quality Act established the State Water Board and divided the state into nine regional basins, each under the jurisdiction of a Regional Water Quality Control Board. The SFBRWQCB (Region 2) regulates water quality in the planning area. The SFBRWQCB has the authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened, and to require remediation actions, if necessary. The SFRWQCB has developed Environmental Screening Levels to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified. The SFRWQCB issued the Municipal Regional Stormwater NPDES Permit (MRP), Order R2-2015-0049, NPDES Permit No CAS612008, which addresses the potential discharge of hazardous materials in municipal stormwater from the planning area and other municipalities in the Bay Area (described in detail under *Section IV.H, Hydrology and Water Quality*).

(2) Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the EPA and CARB). BAAQMD is responsible for preparing attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, and the issuance of permits for activities including asbestos demolition and renovation activities.

⁴¹ California Department of Forestry and Fire Protection (CAL FIRE), 2022a. About Us. Available at: <https://www.fire.ca.gov/about-us/>, accessed June 24, 2022.

⁴² California Department of Forestry and Fire Protection (CAL FIRE), 2018. 2018 Strategic Fire Plan for California, August 22.

BAAQMD Regulation 11-2 requires that prior to commencement of any demolition or renovation, the owner or operator must thoroughly survey the affected structure or portion thereof for the presence of ACMs. The survey must be performed by a person who is certified by the Division of Occupational Safety and Health, and who has taken and passed an EPA-approved Building Inspector course and who conforms to the procedures outlined in the course. The survey must include sampling and the reporting of results of laboratory analysis of the asbestos content of all suspected ACMs. This survey must be made available, upon request by the Air Pollution Control Officer, prior to the commencement of any regulated ACMs removal or any demolition. If ACMs are identified, the disturbance/removal and management of ACMs must be performed in accordance with BAAQMD Regulations under Rule 11-2 to ensure that asbestos would not be released into the environment.

(3) Santa Clara County Department of Environmental Health (DEH)

The DEH implements the Medical Waste Management Program. The Hazardous Materials Program is administered by the HMCD within DEH. HMCD is the Certified Unified Program Agency (CUPA) for most areas of Santa Clara County, including the City of Saratoga. HMCD provides comprehensive environmental regulatory compliance inspection services to protect human health and the environment and coordinates the regulation of hazardous materials and hazardous wastes in the planning area through the Hazardous Waste Program, UST Program, APSA Program, HMBP Program, and CalARP Program. The role of a CUPA is to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities associated with the regulation of hazardous materials and hazardous wastes. Businesses that store or use hazardous materials in the planning area are required to submit chemical and facility information through the California Environments Reporting System (CERS), which is a statewide web-based system to support CUPAs in electronically collecting and reporting various hazardous materials-related data as mandated by the California Health and Safety Code and 2008 legislation (AB 2286).

The HMCD is also responsible for the LUST Local Oversight Program, which manages the cleanup of areas contaminated by UST releases and oversees the cleanup of properties contaminated by hazardous materials not exclusively associated with petroleum USTs through implementation of the Site Cleanup Program SCP. The HMCD also implements the Hazardous Materials Storage Ordinance (County Ordinance No. NS-517.31) and the Toxic Gas Ordinance (County Ordinance No. NS-517.44).

(4) Santa Clara County Operational Area Hazard Mitigation Plan

The Santa Clara County Operational Area Hazard Mitigation Plan, adopted in 2017, has been developed to reduce risks from natural disasters in unincorporated portions of the county and all incorporated Cities in Santa Clara County. The events discussed in the plan include earthquakes,

floods, severe weather, dam and levee failure, landslides, wildfire, and drought. The Hazard Mitigation Plan is comprised of Volume 1 (Operational-Area-Wide Elements) and Volume 2 (Planning Partner Annexes).⁴³ The plan complies with federal and state hazard mitigation planning requirements to establish eligibility for funding under Federal Emergency Management Agency (FEMA) grant programs. The City of Saratoga has adopted the relevant portions of the Santa Clara County Operational Area Hazard Mitigation Plan, including Volume I and the introduction, Chapter 15 – The City of Saratoga Jurisdictional Annex, and the appendices of Volume II.⁴⁴

As described in the Hazard Mitigation Plan, Santa Clara County and its incorporated Cities have experienced many localized accidental hazardous materials incidents. Four major highways in the Operational Area provide vehicle routes for the transportation of large quantities of hazardous materials: U.S.101, Interstate (I)-880, I-680, and I-280. U.S. 101 and I-880 are the most heavily traveled in terms of truck traffic and are the most frequent locations of hazardous materials spills on major roads. The closest of these routes to the planning area is I-280.

(5) Santa Clara County Community Wildfire Protection Plan and Fire Protection Districts

The Santa Clara County Community Wildfire Protection Plan, adopted in 2016, is a countywide strategic plan with goals for creating a safer wildland urban interface community, accompanied by report annexes that address specific issues and projects by jurisdiction and stakeholder organizations to meet the strategic goals. The purpose of the Wildfire Protection Plan is to assist in protecting human life and reducing property loss due to wildfire. The annexes relevant to the project include Saratoga Fire Protection District (Annex 5), Santa Clara County Central Fire Protection District – Saratoga Hills (Annex 1, Chapter 3), and City of Saratoga (Annex 6). Fire Protection services for the planning area is split jurisdictionally between the two fire protection districts, the Saratoga Fire Protection District, and the SCCFD. The Saratoga Fire Protection District’s jurisdiction encompasses the central and western portions of the planning area, and the district provides fire protection and emergency medical services through a contract with the SCCFD. The SCCFD’s jurisdiction encompasses the remainder of the planning area. The unincorporated portion of Saratoga Fire Protection District is designated as SRA and CAL FIRE shares jurisdiction for wildland fires.⁴⁵

⁴³ Santa Clara County, 2017. Operational Hazard Mitigation Plan, Volume 1 and 2, October 15. Available at: <https://emergencymanagement.sccgov.org/multi-jurisdictional-hazard-mitigation-plan-mjhmp>, accessed June 24, 2022.

⁴⁴ City of Saratoga, 2017. Resolution No. 17-048, Adopted September 12, 2017.

⁴⁵ SWCA Environmental Consultants, 2016. Santa Clara County Community Wildfire Protection Plan, August.

The City of Saratoga (Annex 6) of the Santa Clara County Community Wildfire Protection Plan includes the following strategic goals and projects related to improving emergency response/evacuation in the WUI of the city.

Strategic Goal FC8: Where road systems are antiquated and do not provide for proper evacuation or two way flow, require removal of obstructions or upgrade to minimum 2 lanes road system over time.

Project S-FC8.1: Evaluate poor road access issues, develop long-term plan for road improvements where feasible and prioritized routes for evacuation.

Strategic Goal FR7: Develop roadside fuel treatment program, including suite of methods available and sustainability mechanism.

Project S-FR7.1: Implement roadside brushing/mowing throughout community to increase buffer from wildfire ignitions and provide for safe evacuation.

d. Local Regulations and Policies

(1) Hillside Specific Plan

The amended Hillside Specific Plan was adopted in June 1994, and includes goals, policies, and action programs for development in hillside areas in the western portion of the planning area and in a few areas in the southern portion of the planning area. Some of the policies and action programs of the Hillside Specific Plan related to fire hazards and emergency access have either been implemented or are functionally equivalent to the policies of the project and existing Municipal Code requirements discussed below. Policies and action programs related to fire hazards and emergency access that are unique to the Hillside Specific Plan and could still be implemented are listed below.

Fire/Emergency Services Policy 2: Improve response time for hillside area.

Fire/Emergency Services Action Program 2: Study need for a Fire Station in the western hillsides and possibly for joint ownership between the two fire districts.

Circulation Policy 5: Require public right-of-way to be offered on all private access roads used for secondary/emergency access.

Circulation Policy 6: Allow secondary/emergency access roads to be generated.

Circulation Policy 9: The City shall whenever possible, require developers and landowners to maintain private landscaped areas within rights-of-ways.

Circulation Action Program 3: An emergency access road from Hillmoor through the Fremont Union High School District site.

Circulation Action Program 3: Extension of all other roadways shall be considered for emergency/secondary access at the time of development.

(2) Saratoga General Plan

The Saratoga General Plan includes the following relevant policies and implementation measures (IMs) that assist in reducing or avoiding potential impacts related to hazards and wildfires.

Open Space and Conservation Element

Policy OSC-14.2: Fire safety shall be an important consideration when evaluating the preservation of native vegetation and the need for removal of non-native, invasive and/or fire-prone species (such as French broom or eucalyptus).

Circulation Element

Policy CI 2.2: Maintain and develop a Citywide street system that manages vehicular access and provides for emergency access.

Safety Element

Policy SAF-4.1: The City shall require the installation of an early warning fire alarm system in each of the following cases:

- All new single-family dwellings and any existing single-family dwellings that are expanded by fifty percent or more in floor area, where such new or expanded dwellings are located within designated hazardous fire area.
- All new single-family dwellings having a gross floor area in excess of 5,000 square feet.
- Any existing single-family dwelling that is expanded by fifty percent or more in floor area which, after such expansion, will exceed 5,000 square feet in gross floor area.
- All new multi-family dwellings and other new structures having multiple sleeping units, such as hotels, motels, apartments, condominium or other community housing projects, townhouses and nursing homes.
- Any existing multi-family dwelling or other existing structure having multiple sleeping units as described in Paragraph (d) above, which is expanded by fifty percent or more in gross area.

IM SAF-4.1a: Implement through continuation of existing subdivision, zoning and building regulations as contained in the City Code.

Policy SAF-4.2: The City shall coordinate with the Santa Clara County Fire Safe Council on preventing and reducing future losses from wildfires.

IM SAF-4.2a: The City shall coordinate with the Santa Clara County Fire Department, and surrounding hillside communities on the preparation and implementation of a Community Wildfire Protection Plan.

IM SAF-4.2b: Conduct fuel load management activities within the City's Wildland-Urban Interface areas to reduce fire potential on public and private properties and increase fire response effectiveness.

Policy SAF-4.3: The Fire Chief, having jurisdiction, should be authorized to require the installation of an early warning fire alarm system in any new commercial structure or community facility, or expansion of an existing commercial structure by fifty percent or more in gross floor area, whenever the Fire Chief deems such requirement to be necessary or appropriate on the basis of facts and circumstances in each individual case.

IM SAF-4.3a: Implement through continuation of existing subdivision, zoning and building regulations as contained in the City Code.

Policy SAF-4.4: The City shall encourage all property owners to install an early warning fire alarm system on a voluntary basis where such owners are not otherwise required to do so.

IM SAF-4.4a: Implement by continuation of existing provision in the building regulations allowing voluntary installation of the system and publicize the availability of the system for any property located within the city.

Policy SAF-4.5: The City shall continue to enforce existing regulations pertaining to hazardous fire areas (wildland-urban interface), fire retardant construction and landscaping (fuel modification).

IM SAF-4.5a: Periodically review subdivision, zoning and building regulations that pertain to hazardous fire areas to determine if significant changes are required.

IM SAF-4.5b: Update the City's Wildland-Urban Interface map and Fire Hazard Areas Map, when new data and information is made available by local, State, and Federal agencies.

Policy SAF-4.6: The City shall coordinate with the Santa Clara County Fire Department on the need for additional fire prevention regulations for the built up, populated areas of the City.

IM SAF-4.6a: The City, in cooperation with the County of Santa Clara Fire Department, will review and modify, as necessary, existing building regulations to require Type A & B fire retardant roof materials in the densely populated flatlands of the City.

Policy SAF-5.1: The City shall review and update on a regular basis its plan for emergency response and preparedness. This plan shall use local resources and manpower to provide maximum benefit and protection for the City's residents.

IM SAF-5.1a: Review and update annually the City's Emergency Operations Plan, modifying the plan if significant changes are required. Sections of the plan which are incomplete will be completed in a timely manner.

IM SAF-5.1b: Coordinate with Public Works Department, Santa Clara County Fire Department and Santa Clara County Office of Emergency Services on the identification and provision of funding sources to construct an evacuation route along the existing right-of-way already obtained by the City connecting Norton Road to Piedmont Road.

Policy SAF-5.2: The City shall coordinate its Emergency Operations Plan with local jurisdictions and regional agencies to anticipate cumulative impacts during times of disaster.

IM SAF-5.2a: Coordinate with Santa Clara County Office of Emergency Services to review the County and adjacent jurisdictions' plans and resolve areas of potential conflict.

IM SAF-5.2b: On an annual basis, the City will review the Santa Clara County Multi-Jurisdictional Local Hazard Mitigation Plan and the City's Local Hazard Mitigation Plan Annex to ensure that identified mitigation actions are being incorporated into upcoming City sponsored projects, where appropriate.

Policy SAF-5.3: The City shall encourage all citizens to take responsibility for their own safety in the event of a disaster.

IM SAF-5.3a: The City shall publicize and participate in disaster preparedness exercises and distribute emergency planning information to the citizens of Saratoga.

IM SAF-5.3b: The City shall coordinate with Santa Clara County Office of Emergency Services on potential disaster preparedness training opportunities (i.e., CERT, Red Cross, etc.) for Saratoga residents.

(3) Saratoga Municipal Code

Chapter 8 of the Saratoga Municipal Code regulates hazardous materials within the city. The purpose of Chapter 8 is to protect the health, life, resources, and property through the prevention

and control of unauthorized discharges of hazardous materials. The City delegates its authority over the regulation of Hazardous Materials to the County of Santa Clara. Chapter 8 of the Municipal Code includes materials that are regulated under Article 8-10, containments standards under Article 8-15, hazardous materials management plan under Article 8-20, hazardous materials inventory under Article 8-25, responsibility (e.g., requirements for reporting spills and cleanup responsibility) under Article 8-30, inspection and records under Article 8-35, and permitting requirements under Article 8-40.

Chapter 16 of the Saratoga Municipal Code includes the most recently adopted State codes (Building Code, Fire Code, Residential Building Code, etc.) associated with fire regulations that affect development within the city. Article 16-20 (Fire Code) adopts the 2019 California Fire Code and International Fire Code. Section 16-20.150 contains amendments to Chapter 49 of the Fire Code and includes requirements for the WUI zone. Some of the requirements are related to hazardous vegetation and fuel management, defensible space, fire protection water supplies, and ignition source control (e.g., prohibition of fireworks). Article 16-60 (Early Warning Fire Alarm System) identifies the situations in which an early warning fire alarm system must be installed for properties located within the WUI zone. Similar provisions are contained in Chapter 49 of the California Fire Code adopted by the County of Santa Clara.

3. Impacts and Mitigation Measures

Impacts related to hazards, hazardous materials and wildfires resulting from implementation of the project are discussed below. The hazards, hazardous materials, and wildfire related policies and implementation actions in the project are essentially the same as existing policies and implementation actions; therefore, no hazards, hazardous materials, and wildfire related impacts from updating the policies or implementation actions of the General Plan would occur.

The following impact analysis is based on an assessment of baseline conditions for the planning area, including hazardous materials conditions, air traffic hazards, emergency response and evacuation plan requirements, and the risk of exposure to wildland fires. This analysis identifies potential impacts based on the interaction between the affected environment and construction, operation, and maintenance activities related to future development that could occur under the project.

a. Significance Criteria

According to the CEQA Guidelines Appendix G, the project would have a significant impact related to hazards, hazardous materials, and wildfire if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4-mile of an existing or proposed school;
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area; and
6. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

If the project is located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:

1. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
2. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
3. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Finally, for all hazard and wildfire situations, would the project:

1. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

b. Analysis and Findings

(1) Routine Transport, Use, or Disposal Of Hazardous Materials (Criterion 1)

Development accommodated under the project would result in an increase in new residential uses, which could result in an increase in the transportation, use, and disposal of hazardous materials. However, development under the project does not include industrial uses that would transport, use, or dispose of substantial quantities of hazardous materials as these land uses are

not envisioned in the city. During construction activities, hazardous materials (e.g., fuels, lubricants, solvents, adhesives, and paints) would be transported and used, and hazardous wastes may be generated for disposal. As such, construction activities could result in an increase in the transportation, use, and disposal of hazardous materials.

The routine transportation, use, and disposal of hazardous materials during construction and operation of residential developments under the project may pose health and safety hazards to people handling the hazardous materials if the hazardous materials are improperly handled, or to the nearby public and the environment if the hazardous materials are accidentally released into the environment. Potential impacts associated with accidental releases of hazardous materials into the environment are discussed under *Accidental Releases of Hazardous Materials* below.

Transportation of Hazardous Materials

As described in the *Regulatory Setting* section above, the transportation of hazardous materials on local roadways and along railways is regulated and monitored by multiple federal and State agencies. These agencies enforce federal and State regulations regarding the transportation of hazardous materials and also respond to hazardous material spills and releases that occur on roadways, railway lines, and at railroad crossings. Should an accidental release of hazardous materials occur during transport within the planning area, the SCCFD would respond. Caltrans and the CHP would also respond if spills of hazardous materials occur on State highways.

Use of Hazardous Materials

Hazardous materials would be routinely used during construction of residential developments under the project. Developments under the project that would result in disturbance of one acre or more of land would be required to manage soil and hazardous materials during construction activities in accordance with the requirements of the Construction General Permit, which requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes hazardous materials storage requirements. For example, construction site operators must store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed). Residential developments under the project that would result in disturbance of less than one acre would generally handle smaller quantities of hazardous materials, which reduces the likelihood for the accidental release of significant quantities of hazardous materials. The City performs inspections of all construction sites in accordance with the requirements of the MRP to ensure that potential sources of stormwater pollutants, including hazardous materials, are appropriately managed. Compliance with the existing regulations described above under *Regulatory Setting* would ensure that hazardous materials are properly handled during construction.

Operation of residential developments under the project would also involve the routine transportation, use, and disposal of hazardous materials for service/maintenance industries, commercial facilities, pest/weed management, agriculture, medical facilities, schools, and households. Businesses storing significant quantities of hazardous materials (e.g., in USTs or over threshold quantities for aboveground storage) would be regulated under the HMCD's Hazardous Materials Programs which ensure the safe storage, use, and handling of hazardous materials.

Disposal of Hazardous Materials

The disposal of hazardous materials by businesses in the planning area is regulated and monitored by the HMCD under the Hazardous Waste Program. The disposal of hazardous waste is also regulated by DTSC consistent with the requirements of federal and State regulations including RCRA, Health and Safety Code Division 20, Chapter 6.5, and CCR Title 22. Household hazardous waste generated in the planning area can be safely disposed of at facilities located in San Jose and San Martin which are operated under the County of Santa Clara Household Hazardous Waste Program.

The project does not induce or facilitate any major land use changes that would substantially alter the basic land uses of the city. While residential development planned by the project could result in an incremental increase in the transportation, use, and disposal of hazardous materials within the planning area, that incremental increase is not expected to change the risks associated with routine hazardous materials transportation, use, and disposal compared to the existing condition. Compliance with the existing regulation described under *Regulatory Setting* above, including OSHA and Cal/OSHA regulations, the California Health and Safety Code Division 20, Chapter 6.5, CCR, DOT, RCRA, HMCD's Hazardous Materials Programs, DEH's Medical Waste Management Program and the other federal, State, regional, and local regulations would ensure that residential development under the project would not create a significant hazard to the public or the environment associated with the routine transport, use, or disposal of hazardous materials by ensuring that these materials are properly handled during construction and operation of developments under the project. Therefore, potential impacts related to routine transport, use, or disposal of hazardous materials would be less than significant.

(2) Release of Hazardous Materials Into the Environment (Criterion 2)

The public and/or the environment could be affected by the release of hazardous materials into the environment if: 1) hazardous building materials (e.g., lead paint, asbestos, PCBs, and mercury) were disturbed and released into the environment during demolition or renovation activities for developments under the project; 2) leakage, spills, or improper disposal of hazardous materials would occur during construction or operation of developments under the project; or 3) development under the project would expose construction workers, the public,

future occupants of developments, or the environment to potentially contaminated soil or groundwater during construction or operation of developments under the project.

Hazardous Building Materials

If lead paint is present in structures to be renovated or demolished under the project, the stabilization and/or removal of lead paint would be required in accordance with applicable laws and regulations, including but not limited to: California OSHA's Construction Lead Standard, Title 8 CCR Section 1532.1, and Department of Health Services (DHS) regulation 17 CCR Sections 35001 through 36100, as may be amended.

If ACMs are present in structures to be renovated or demolished under the project, the disturbance/removal and management of ACMs must be performed in accordance with BAAQMD Regulations under Rule 11-2 prior to the City issuing demolition or renovation permits to ensure that asbestos would not be released into the environment.

Electrical and lighting equipment that may contain hazardous materials such as mercury and PCBs can be readily identified and therefore would be appropriately managed/disposed of in accordance with applicable regulations including TSCA, DTSC hazardous waste rules, and other federal and State regulations. PCB-containing building materials such as caulks/sealants, rubber window seals/gaskets, specialized paints, mastics and other adhesives require testing to evaluate whether these materials contain PCBs.

The MRP requires that all Bay Area municipalities address potential sources of PCBs including preventing certain building materials that may contain PCBs from entering storm drains as a result of building demolition activities. The West Valley Clean Water Authority (WVCWA) serves as the Stormwater Pollution Prevention Authority for the City and the cities of Campbell, Monte Sereno, and the Town of Los Gatos. The WVCWA developed an assessment protocol and methodology for managing PCBs in applicable structures planned for demolition. All applicants applying for demolition permits in the city must conduct an assessment to screen for PCBs in priority building materials including caulks and sealants, thermal/fiberglass insulation and other insulating materials, adhesive/mastic, and rubber window seals/gaskets. The requirements apply to whole building demolition of commercial, multi-family residential, public, institutional, and industrial structures constructed or remodeled between 1950 and 1980. Single-family homes and wood-frame structures are exempt.⁴⁶

Hazardous building materials removed during demolition or renovation activities must be transported in accordance with DOT regulations and disposed of in accordance with the RCRA,

⁴⁶ West Valley Clean Water Program Authority (WVCWPA), 2022. Polychlorinated Biphenyls (PCBs), Available at: <https://ca-wvcwp.civicplus.com/211/Polychlorinated-Biphenyls-PCBs>, accessed June 28, 2022.

CCR, and/or California Universal Waste Rule at a facility permitted to accept the wastes. Compliance with the existing regulations described above would ensure that potential impacts related to the release of hazardous building materials into the environment due to residential development under the project would be less than significant.

Spills, Leaks, or Improper Disposal of Hazardous Materials

An accidental release of hazardous materials (e.g., oils, fuels, solvents, paints, or contaminated soil or groundwater) during construction under the project could result in exposure of construction workers, the public, and/or the environment to hazardous materials. As discussed above, construction projects that disturb one acre or more of land would be subject to the requirements of the Construction General Permit, which requires preparation and implementation of a SWPPP to reduce the risk of spills or leaks from reaching the environment, including procedures to address minor spills of hazardous materials. Measures to control spills, leakage, and dumping must be addressed through structural as well as nonstructural best management practices (BMPs). For example, equipment and materials for cleanup of spills must be available on site, and spills and leaks must be cleaned up immediately and disposed of properly. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. As discussed above, smaller construction sites would generally handle smaller quantities of hazardous materials, which reduces the likelihood for the accidental release of significant quantities of hazardous materials, and the City performs inspections of all construction sites as required by the MRP, which ensures that hazardous materials are appropriately managed.

As discussed above, the transportation of hazardous materials is subject to both federal and State regulations. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill), and is responsible for the discharge cleanup.

The HMCD's Hazards Materials Programs and the DEH's Medical Waste Management Program require that hazardous materials are properly labeled, stored, and disposed of; and requires training and planning to ensure appropriate responses to spills and emergencies.

Compliance with existing regulations regarding the management, transportation, and disposal of hazardous materials, as discussed under *Regulatory Setting* and *Routine Transport, Use, or Disposal of Hazardous Materials* would ensure that potential impacts related to spills, leaks, or improper disposal of hazardous materials that would be routinely handled during construction and operation of residential developments under the project would be less than significant.

Soil and Groundwater Contamination

As discussed under *Setting*, there are documented hazardous materials release sites within the planning area, and there is the potential for previously unidentified hazardous materials contamination to be present in the planning area, particularly in areas of past or existing commercial or industrial land use; areas adjacent to or intersected by existing/former railroad tracks; areas adjacent to major roadways; areas of past agricultural land use; and areas with undocumented fill materials.

Impact HAZ-1: Contaminated soil or groundwater in the subsurface of residential development projects could pose a risk of exposure to hazardous materials. (S)

The disturbance of contaminated soil or groundwater during construction activities could result in impacts to construction workers, the public, and the environment as dust or vapors containing hazardous materials can be released into the environment, movement of contaminated soil can spread contamination to new areas, and construction of landscaping (and in particular stormwater treatment/infiltration features) over areas of contaminated soil or groundwater could increase the leaching of contaminants from soil into groundwater or the migration of contaminated groundwater. The potential release of hazardous materials into the environment during development or redevelopment of potentially contaminated properties is a potentially significant impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-1: The following requirements related to potential hazardous materials contamination would not apply to residential renovations/additions (due to the limited soil disturbance involved with such projects) or properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the City through historic aerial photos, maps, and/or building department records.

Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include

recommendations for further investigation or remedial action, as appropriate, for hazardous materials contamination. Remedial actions may include, but not necessarily be limited to, the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping, sumps/vaults), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.

If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the Phase I and II ESAs and proposed remedial action plans shall be reviewed by a third party qualified environmental assessment professional selected by the City and funded by the project applicant. The third party qualified environmental assessment professional shall either approve of the proposed remedial actions or provide recommendations for further investigation, additional/alternative remediation actions, and/or regulatory agency oversight for the project site, and the recommendations of the third party qualified environmental assessment professional shall be implemented. (LTS)

Implementation of Mitigation Measure HAZ-1 would ensure that the risk of hazardous materials being released into the environment during residential development under the project due to soil or groundwater contamination would be less-than-significant.

(3) Hazardous Emissions within ¼-Mile of Schools (Criterion 3)

As discussed in *Section IV.M, Public Services*, Saratoga is served by both public and private schools. The city also contains several preschools and day cares. Given the distribution of schools in the city, it is possible that future residential development under the project may increase the likelihood of hazardous emissions and handling of hazardous materials within ¼-mile of schools. As discussed under Criteria 1 and 2 above, compliance with the existing regulation described under *Regulatory Setting* above (e.g., OSHA and Cal/OSHA regulations, the California Health and Safety Code Division 20, Chapter 6.5, CCR, DOT, RCRA, HMCD's Hazards Materials Programs, DEH's Medical Waste Management Program, and other federal, State, regional, and local regulations) and implementation of Mitigation Measure

HAZ-1 would ensure that appropriate management of hazardous materials and potential soil and groundwater contamination would be performed so that impacts related to the release of hazardous materials into the environment would be less than significant. Therefore, potential impacts related to hazardous emissions within ¼-mile of schools as a result of residential development under the project would be less than significant.

(4) Government Code Section 65962.5 (Criterion 4)

The provisions of Government Code Section 65962.5 require the DTSC, the State Water Board, the California Department of Health Services, and the California Department of Resources Recycling and Recovery (formerly the California Integrated Waste Management Board) to submit information pertaining to sites associated with solid waste disposal, hazardous waste disposal, LUST sites, and/or hazardous materials releases to the Secretary of CalEPA. The known hazardous materials release sites identified within the city are discussed under *Setting* above. All of the closed and open LUST sites identified on GeoTracker are included on the list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5.⁴⁷ Implementation of Mitigation Measure HAZ-1 would ensure that if residential development under the project occurs on properties included on the list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5, potential impacts related to past hazardous materials releases would be less than significant.

(5) Aviation Hazards (Criterion 5)

As previously stated, the planning area is not located within any protected airspace zones defined by the Santa Clara County ALUC. The closest airport, San Jose International Airport, is located approximately six miles northeast of the city.⁴⁸ The city does not support any heliports, as described in the Heliport Land Use Compatibility Plan, prepared by the Santa Clara County ALUC. The nearest helipad locations are 2.5 to 3.5 miles outside of the city.⁴⁹ As a result, future development under the project would not result in a safety hazard for people residing or working in the project area, and no impacts would occur under this criterion.

⁴⁷ California Environmental Protection Agency (CalEPA), 2022. Cortese List Data Resources. Available at: <https://calepa.ca.gov/sitecleanup/corteselist/>, accessed June 6, 2022.

⁴⁸ Windus, Walter B., 2011. Comprehensive Land Use Plan for San Jose International Airport, Santa Clara County Airport Land Use Commission, Adopted May 25, 2011, Amended November 16, 2016.

⁴⁹ Windus, Walter B., 2015. Heliport Land Use Compatibility Plan, Santa Clara County Airport Land Use Commission, October 28.

(6) Expose People or Structures to Wildland Fires (Criterion 6)

As discussed under *Setting* above, the southern and western portions of the planning area are prone to wildland fire hazards due to topography and vegetation, and much of these areas are designated by the City as the Wildland-Urban Interface (WUI) zone. Many of the parcels listed in the Housing Sites Inventory are located in the WUI zone, including the majority of the vacant parcels listed in the Housing Sites Inventory, as shown on Figure IV.G-2.

In the event of a major fire, evacuation from some areas could be challenging due to the topography, vegetation, and limited access roads. As described in the *Setting* section, the City has developed an Emergency Operations Plan and an Emergency Evacuation Plan, which would help relocate residents from hazardous areas/incidents to safer locations. As shown in Figure IV.G-3, the identified evacuation routes guide people being evacuated to local arterial streets which connect to the regional road network. The Safety Element of the General Plan indicates that depending on the nature of the disaster, some access roads in the hillside areas may be closed or impeded, creating the necessity for residents to evacuate from the area along substandard emergency access roads or by helicopter.

The project would allow for the development of new residential uses in areas that are prone to wildfires, including the WUI zone; however, new development is limited to very-low density residential uses on existing single-family lots. All new multi-family residential development is proposed outside of the WUI zone. The topography may limit the construction of new roadways in the areas of some developments, which could limit emergency evacuation/response access; however, new development in the hillside areas could also result in the creation of additional access roads that could improve emergency evacuation/response route options for existing residents and emergency responders. Under existing conditions, residents may be required to evacuate from areas along substandard emergency access roads or by helicopter. Therefore, the addition of more residents to such areas could result in an incremental increase in the need for emergency evacuation resources. The incremental increase in the number of residents in hillside areas would not be expected to impede evacuation efforts as only very low-density residential uses are planned in these areas.

Residential development under the project would include implementation of the strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, the policies and implementation measures of the General Plan, the Emergency Operations Plan, and the Emergency Evacuation Plan; and compliance with the relevant sections of the City's Municipal Code, which are described above under *Regulatory Setting* and *Setting*. These measures and requirements would reduce the risk of wildfires through public education programs; ensuring that adequate emergency evacuation/access routes are created and maintained; ensuring water supplies are available for fire suppression; ensuring early fire warning systems and emergency response/evacuation

personnel, equipment, and procedures are in place; and implementing vegetation management to reduce the risks of wildfires spreading and exposure of people and structures to wildfires.

The fire hazard severity zone mapping prepared by CAL FIRE for the planning area has not been updated since 2008, and CAL FIRE is planning to issue new draft fire hazard severity zone maps sometime in 2023.⁵⁰

Impact HAZ-2: Residential development located in areas susceptible to wildfire outside of the Wildland Urban Interface zone could expose people and structures to an increased risk of exposure to wildfire. (S)

Residential development under the project in areas susceptible to wildfire that are outside of the WUI zone (such as the Housing Sites 24 and 27 shown on Figure IV.G-2) would not be required to comply with the Municipal Code requirements for the WUI zone, which could create an increased risk of exposure to wildfire for future occupants of such new developments, and can increase the risk of wildfire spreading from or through such new developments to surrounding areas. This is a potentially significant impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-2: The City shall work with CAL FIRE and the Santa Clara County Fire Department to update the City's WUI zone map to account for the current city limits and the updated fire hazard severity zone mapping being prepared by CAL FIRE. (LTS)

Construction of future residential developments under the project would use construction equipment that could generate sparks (e.g., jack hammers, saws, and mowers), hot work that can generate significant amounts of sparks, flame, or slag (e.g., grinders, acetylene torches, and welding equipment), and would involve storage and use of flammable and combustible materials (e.g., fuel, compressed gasses, building materials) which could temporarily increase fire risks in wildfire prone areas. The SCCFD has established construction site fire safety requirements that reduce the potential for fires to be started by construction activities. These requirements include preparation of a written Fire Protection Plan for significant or complex construction projects (at the discretion of the Fire Department); general safety requirements (e.g., access roadways, key boxes, fire hydrants, phone service, storage of combustible/flammable materials, smoking in designated areas, and parking vehicles away from buildings); fire protection systems (e.g., sprinklers, standpipes, fire extinguishers, and alarm systems); special operations (e.g., hot work, asphalt and tar kettles, and motorized equipment); and hazardous materials storage and use

⁵⁰ California Department of Forestry and Fire Protection (CAL FIRE), 2022b. Fire Hazard Severity Zones, Available at: <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/>, accessed July 14.

(e.g., liquefied petroleum gas, flammable and combustible liquids and compressed gasses).⁵¹ The California Fire Code contains similar requirements for construction and demolition activities under Chapter 33, and contains specific requirements for welding and other hot work under Chapter 35. While the SCCFD and California Fire Code requirements for construction sites greatly reduce the risk of fires starting and are generally adequate for most construction sites these requirements for construction sites would not apply to vegetation management activities and maintenance/repair activities that could also involve the use of flammable liquids (e.g., fuels) and equipment that could generate sparks such as mowers, brush cutters, chainsaws for vegetation management; and saws, grinders, and welders for maintenance/repair activities. Additional fire safety precautions beyond the requirements of SCCFD and California Fire Code could also be taken for construction activities in wildfire prone areas.

Impact HAZ-3: Construction, vegetation management, and maintenance/repair activities associated with residential development under the project could expose people and structures to an increased risk of exposure to wildfire. (S)

The potential for construction, vegetation management, and maintenance/repair activities associated with residential development under the project to increase the risk of starting fires in wildfire prone areas is a potentially significant impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-3: The City shall update its Municipal Code to require that contractors or residents performing construction, vegetation management, and/or maintenance/repair activities in the City's Wildland Urban Interface (WUI) zone (as established in the most current WUI zone map available through the City's Planning Department) implement the following measures to minimize the potential for accidental ignition of construction materials and vegetation: 1) store flammable/combustible materials at least 20 feet away from vegetation and buildings; 2) no vehicles or equipment shall be driven or parked in areas where vegetation can contact exhaust systems; 3) spark arrestors shall be fitted on all vehicles and equipment and non-sparking tools/attachments shall be utilized when feasible; 4) work that generates sparks or flame such as metal grinding, cutting, torching, and welding shall only be performed in areas where vegetation/combustible materials have been sufficiently cleared, combustible materials that cannot be moved are protected, and fire watch and post-work inspection is performed in accordance with the Santa Clara County Fire Department's construction site fire safety requirements; 5) potential spark generating equipment (e.g., mowers, brush cutters, and chainsaws) shall not be used

⁵¹ Santa Clara County Fire Department, 2009. Standard Details & Specifications, Subject: Construction Site Fire Safety, April 30, Available at: https://www.sccfd.org/wp-content/uploads/documents/fire_prevention/standards/2.4.6_construction_site_safety.pdf, accessed July 15, 2022.

near dry vegetation during periods of heightened wildfire danger including when Red Flag Warnings & Fire Weather Watches are issued by the National Weather Service for the area; 6) an adequate water source and fire extinguishers shall be available nearby at all times for fire suppression; 7) fueling of motorized equipment shall not be performed when the equipment is running or hot, or near other sources of heat/sparks (e.g., vehicle exhaust, cigarettes); and 8) smoking shall not be permitted near areas of dry vegetation or areas of flammable or combustible materials storage. (LTS)

Implementation of strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, the policies and implementation measures of the General Plan, the SCCFD's construction site fire safety requirements, the Emergency Operations Plan, and the Emergency Evacuation Plan; compliance with the relevant sections of the City's Municipal Code and California Fire Code; and implementation of Mitigation Measures HAZ-2 and HAZ-3 would ensure that potential impacts of residential development under the project related to exposure of people and structures to wildfires would be less than significant.

(7) Exacerbate Wildfire Risks and Expose Future Occupants to Pollutant Concentrations from Wildfire or the Uncontrolled Spread of Wildfire (Criterion 7)

Portions of the planning area and nearby areas are located in State (CAL FIRE) responsibility areas for fire suppression, including areas mapped by CAL FIRE as very high fire hazard severity zones as shown in Figure IV.G-2. Due to topography (steep slopes and deep canyons) and vegetation, areas in the western and southern portions of the planning area are susceptible to wildland fires and can be difficult for fire fighters to access, making fires in these areas more difficult to control. The rapid spread of fire and extreme fire behavior is more likely to occur in these areas.

As discussed under Criterion 6 above, residential development under the project would include implementation of strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, the policies and implementation measures of the General Plan, the SCCFD's construction site fire safety requirements, the Emergency Operations Plan, and the Emergency Evacuation Plan; compliance with the relevant sections of the City's Municipal Code and California Fire Code; and implementation of Mitigation Measures HAZ-2 and HAZ-3. This would reduce fire risk through public education programs and construction/maintenance work precautions; reduce the spread of wildfire by removing flammable vegetation from around buildings and roadways; ensuring adequate water supply is available for fighting wildfires; providing training for all firefighters in basic wildfire behavior; ensuring that adequate emergency evacuation/access routes are created and maintained; and ensuring that early fire warning systems and emergency

response/evacuation personnel, equipment, and procedures are in place for people affected by wildfires. Reducing the potential for fires to start, and mitigating the spread of wildfires once started, would reduce exposure to smoke and air pollution. Safely evacuating people affected by wildfires would also reduce exposure to smoke and air pollution. Therefore, impacts related to the exposure of people to pollutants concentration from wildfire or the uncontrolled spread of wildfire would be less than significant.

(8) Require the Installation or Maintenance of Associated Infrastructure that Would Exacerbate Fire Risk or Result in Impacts to the Environment (Criterion 8)

Residential development within wildfire susceptible areas of the planning area may require the installation of new infrastructure, such as roads, power lines, water lines, and other utilities in the Project area. In accordance with Section 15-80.040 of the City's Municipal Code, all utility lines in the city must be installed underground, with few exceptions (e.g., appurtenances to underground systems, high voltage transmission lines, and replacement/repair of existing overhead utilities). Installation of new utilities underground would greatly reduce the likelihood of fires being started by damaged/malfunctioning electrical utilities during their operation. Installation of new utilities underground would also essentially eliminate the need for above ground maintenance activities for the utilities such as vegetation management, which would greatly reduce the risk of fires being started by utility maintenance activities. Implementation of the SCCFD's construction site fire safety requirements, compliance with the California Fire Code, and implementation of Mitigation Measure HAZ-3 would ensure that potential impacts related to construction and maintenance of infrastructure exacerbating fire risk would be less than significant.

Construction and maintenance of infrastructure in areas that are susceptible to wildfire could result in other impacts to the environment (e.g., impacts to biological resources, cultural resources, geology and soils, hydrology and water quality) that would be similar to the potential impacts of construction and maintenance activities for other types of projects (e.g., new residences) in similar areas. The General Plan does not identify any specific infrastructure projects that may be required to support residential development under the project, and therefore the potential impacts of such infrastructure projects cannot be evaluated at this time. Additional environmental review of such infrastructure projects would occur at the time when such projects are proposed.

(9) Expose People or Structures to Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes (Criterion 9)

The western and southern portion of the planning area contains steep slopes and deep canyons which can be susceptible to erosion/landslides and rapid stormwater runoff that can contribute to

downslope/downstream flooding/debris flows/mudflows after fire has removed vegetation that would otherwise reduce runoff and erosion and has left a layer of ash, burned vegetation/debris, and exposed soil that is susceptible to erosion. The Santa Clara County Operational Area Hazard Mitigation Plan describes a range of secondary hazards associated with wildfires, which can include contamination of reservoirs and destruction of transmission lines and roads in addition to erosive runoff/flooding and slope failure. Major landslides can occur several years after a wildfire. Most wildfires burn hot and for long durations that can bake soils, especially those high in clay content, thus increasing the imperviousness of the ground. This increases the runoff generated by storm events, thus increasing the chance of flooding.⁵²

As described in *Section IV.E, Geology and Soils*, and *Section IV.H, Hydrology and Water Quality*, residential development under the project is subject to the rules and regulations of the Saratoga Municipal Code, the policies and action programs of the Hillside Specific Plan, and the policies and implementation measures of the General Plan regarding development on hillsides and unstable soils and controlling stormwater runoff both during and after construction (e.g., low impact design such as stormwater capture, infiltration, and biotreatment). Therefore, in the absence of a wildfire, future residential development under the project would not substantially alter drainage patterns, result in significant downslope or downstream flooding, or result in significant impacts related to landslides.

As discussed under Criterion 6 above, residential development under the project would include implementation of strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, the policies and implementation measures of the General Plan, the SCCFD's construction site fire safety requirements, the Emergency Operations Plan, and the Emergency Evacuation Plan; compliance with the relevant sections of the City's Municipal Code and California Fire Code; and implementation of Mitigation Measures HAZ-2 and HAZ-3, which would reduce the potential for fires to start and mitigate the spread of wildfires. By reducing the potential for direct impacts from wildfires to a less than significant level, potential impacts related to secondary hazards from wildfires including downslope/downstream flooding/mudflows would also be less than significant.

⁵² Santa Clara County 2017, Operational Hazard Mitigation Plan, Volume 1 and 2, October 15. Available at: <https://emergencymanagement.sccgov.org/multi-jurisdictional-hazard-mitigation-plan-mjhmp>, accessed June 24, 2022.

(10) Impair or Interfere with an Adopted Emergency Response or Emergency Evacuation Plan (Criterion 10)

As described in the *Regulatory Setting* section, the City has developed an Emergency Operations Plan, which describes the overall responsibilities of the federal, State and county entities and the City for protecting life and property and assuring the overall wellbeing of the population. The City has also developed an Emergency Evacuation Plan, which will help relocate residents from hazardous areas/incidents to safer locations. As shown in Figure IV.G-3, the identified evacuation routes guide people being evacuated to local arterial streets which connect to the regional road network.

Development under the project could result in an increase in new residential uses. As described in *Chapter III, Project Description*, the project is expected to accommodate approximately 1,994 new residential units (of which an estimated 480 are new accessory dwelling units). This additional residential development could increase the city's population by approximately 5,703 residents.

Residential development and growth in the city under the project could result in an increase in the demand for emergency response services. The current Emergency Operations Plan adopted in 2019 addresses the needs and actions of City personnel before, during, and after a disaster, and addresses the activities of all people and organizations in the city to develop and ensure communication, cooperation, coordination, and collaboration in all disaster related work.

As such, new residential development under the project will be considered in the context of the Emergency Operations Plan, which may be periodically updated, and is not expected to impair the implementation of or physically interfere with the adopted emergency response plan. Nonetheless, the Emergency Operations Plan is maintained on a regular basis by the SCCFD, the Santa County Sheriff's Office, and the City (yearly updates are performed per Policy IM SAF-5.1a of the General Plan Safety Element). Therefore, potential impacts related to impairing or interfering with the Emergency Operations Plan would be less than significant.

Residential development and growth in the planning area under the project would result in an increase in the need for effective emergency evacuation routes. Much of the development facilitated by the project would be served by the existing emergency evacuation routes, which have sufficient capacity to accommodate proposed growth under the project; however, there may be some areas, such as the hillsides in the western and southern portions of the planning area, where additional residential development may occur and topography may limit the construction of new roadways in the areas of some developments, which could limit emergency evacuation/response access; however, new development in the hillside areas could also result in the creation of additional access roads that could improve emergency evacuation/response route options for existing residents and emergency responders. Under existing conditions residents

may have to evacuate from areas along substandard emergency access roads or by helicopter, therefore the addition of more residents to such areas could result in an incremental increase in the need for emergency evacuation resources. However, the incremental increase in the number of residents in hillside areas would not be expected to impede evacuation efforts as only very low-density residential uses are planned in these areas.

Residential development under the project would include implementation of the strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, and the policies and implementation measures of the General Plan, which promote improving/maintenance of existing evacuation/access roads and creation of more evacuation/access roads where feasible, which would ensure that potential impacts related to impairing or interfering with the Emergency Evacuation Plan would be less than significant.

c. Cumulative Impacts

This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development in areas surrounding the planning area, including the El Paseo and 1777 Saratoga Ave Mixed Use Village and Costco Westgate cumulative projects, would result in a cumulatively significant impact with respect to hazards, hazardous materials, or wildfire. This analysis then considers whether or not the incremental contribution of the impacts associated with the implementation of the project would be significant. Both conditions must apply for a project's cumulative effects to rise to the level of a significant impact. The geographic context for this analysis includes the Saratoga planning area and the surrounding cities of Cupertino, San Jose, Campbell and Monte Sereno, the town of Los Gatos, and adjacent unincorporated areas.

(1) Hazardous Materials

As previously discussed, development facilitated by the project could result in an incremental increase in new residential uses, which could result in an incremental increase in the transportation, use, and disposal of hazardous materials. Development in areas surrounding the planning area could also result in an increase in the transportation, use, and disposal of hazardous materials. Occurrence of a cumulative impact related to hazardous materials would require that multiple locations release hazardous materials at the same time near each other, which is an unlikely event. Compliance with the existing regulation described under *Regulatory Setting above*, including OSHA and Cal/OSHA regulations, the California Health and Safety Code, CCR, DOT, RCRA, HMCDD's Hazardous Materials Programs, DEH's Medical Waste Management Program and the other federal, State, regional, and local regulations would ensure that development under the project and in areas surrounding the planning area would not result in cumulatively considerable releases of hazardous materials. Construction activities under the project and development in areas surrounding the planning area could potentially disturb and release hazardous materials

into the environment and expose construction workers, the public, and future occupants of developments to hazardous materials due to potentially soil and groundwater contamination; however, implementation of Mitigation Measures HAZ-1 would ensure that potential impacts of construction activities under the project related to soil and groundwater contamination would not be cumulatively considerable. For these reasons, impacts of the project related to hazardous materials are not cumulatively considerable and the cumulative impact would be less than significant.

(2) Emergency Response and Evacuation Plans

As previously discussed, residential development envisioned by the project would result in an incremental increase in the demand for emergency response and the use of emergency evacuation routes. The Santa Clara County Operational Area Hazard Mitigation Plan⁵³ covers all incorporated Cities in Santa Clara County, as well as unincorporated portions of the county. The Hazard Mitigation Plan addresses emergency preparedness, emergency warning, emergency communications, emergency response, and recovery following an emergency. The hazard mitigation plan also identifies resources, information, and strategies for reducing risk from natural hazards. Santa Clara County communities coordinate and work together to ensure that the Hazard Mitigation Plan is implemented and kept up to date. In addition, Saratoga has an Emergency Operations Plan and Emergency Evacuation Plan that are regularly updated. Adjacent jurisdictions also have emergency response plans and emergency evacuation plans. Development under the project would include implementation of the strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific Plan, and the policies and implementation measures of the General Plan, which promote improving/maintenance of existing evacuation/access roads and creation of more evacuation/access roads where feasible. For these reasons, impacts of the project on adopted emergency response plans or emergency evacuation plans are not cumulatively considerable and the cumulative impact would be less than significant.

(3) Wildfire

Residential development under the project combined with development in areas surrounding the planning area could result in an increase in the risks of starting wildfires and exposure of people and structures to wildland fires and associated hazards; however, development under the project would include the implementation of strategic goals and projects of the Santa Clara County Community Wildfire Protection Plan, the policies and action programs of the Hillside Specific

⁵³ Santa Clara County 2017, Operational Hazard Mitigation Plan, Volume 1 and 2, October 15. Available at: <https://emergencymanagement.sccgov.org/multi-jurisdictional-hazard-mitigation-plan-mjhmp>, accessed June 24, 2022.

Plan, the policies and implementation measures of the project, the Santa Clara County Fire Department's construction site fire safety requirements, the Emergency Operations Plan, and the Emergency Evacuation Plan; compliance with the relevant sections of the City's Municipal Code and California Fire Code; and implementation of Mitigation Measures HAZ-2 and HAZ-3. These actions would reduce fire risk through public education programs and construction/maintenance work precautions; reducing the spread of wildfire by removing flammable vegetation from around buildings and roadways; ensuring adequate water supply is available for fighting wildfires; providing training for all firefighters in basic wildfire behavior; ensuring that adequate emergency evacuation/access routes are created and maintained; and ensuring that early fire warning systems and emergency response/evacuation personnel, equipment, and procedures are in place for people affected by wildfires. Therefore, impacts of the project related to wildfires are not cumulatively considerable and the cumulative impact would be less than significant.

H. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrology and water quality conditions within the planning area and evaluates potential impacts to hydrology and water quality that could occur from implementation of the proposed project. Water supply and wastewater conveyance and treatment are discussed in *Section IV.O, Utilities and Service Systems*. Issues regarding wetlands and Waters of the United States are discussed in *Section IV.C, Biological Resources*.

1. Setting*

a. Regional Hydrology

The planning area is located within the Santa Clara Valley near the southern end of the San Francisco Bay. The planning area is located within the San Tomas Aquino Creek, Calabazas Creek, and Saratoga Creek watersheds. Figure IV.H-1 illustrates the boundaries of the watersheds and creeks within the planning area. Saratoga Creek, even though part of the San Tomas Aquino Creek Watershed, is discussed as a separate waterbody. The planning area is located within the Santa Clara Groundwater Subbasin which is part of the Santa Clara Valley Groundwater Basin.

(1) San Tomas Aquino Creek Watershed

The San Tomas Aquino Creek watershed covers an area of approximately 45 square miles. San Tomas Aquino Creek originates in the forested foothills of the Santa Cruz Mountains and flows in a northerly direction through the southwestern and western portions of the planning area before flowing into Guadalupe Slough and Lower South San Francisco Bay. The major tributaries to San Tomas Aquino Creek include Saratoga, Wildcat, Smith and Vasona Creeks. Of these, Saratoga Creek drains the largest area (17 square miles) and joins San Tomas Aquino Creek 1.5 miles upstream of Highway 101.¹ Due to its relatively large size, the Saratoga Creek subwatershed is discussed as a distinct watershed even though it does not directly drain to the Lower South San Francisco Bay.

Most of the San Tomas Aquino Creek watershed is developed as high-density residential neighborhoods, with additional areas developed for commercial and industrial uses. The majority of the San Tomas Aquino Creek channel has been modified and lined with concrete (from the Smith Creek confluence in the upper reaches downstream to Highway 101).²

¹ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

² Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

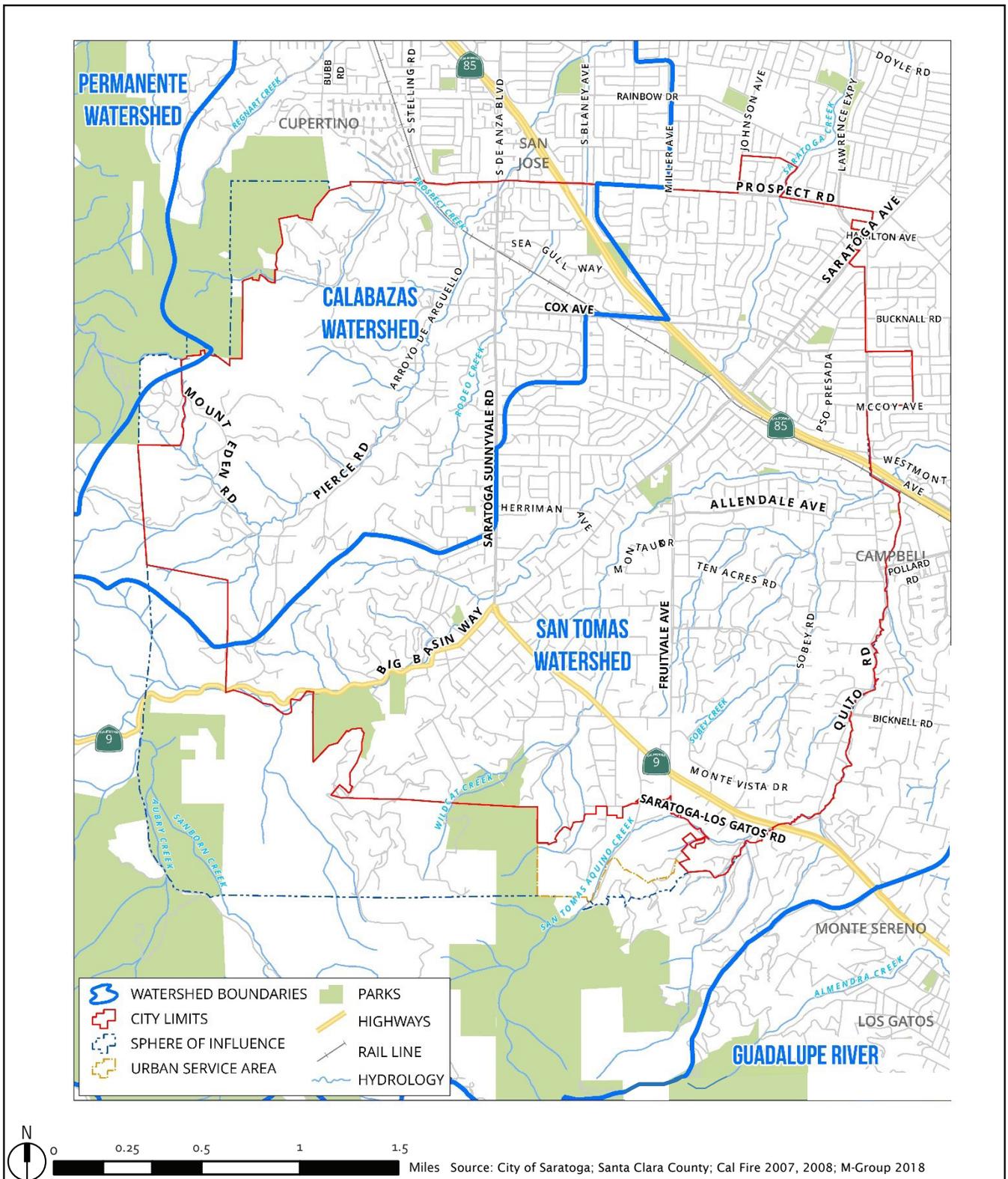


Figure IV.H-1
Watersheds

(2) Saratoga Creek Watershed

Saratoga Creek originates on the northeastern slopes of the Santa Cruz Mountains along Castle Rock Ridge at 3,100 feet in elevation. Saratoga creek flows for approximately 4.5 miles in an easterly direction through forested terrain largely through Sanborn County Park. It continues for about 1.5 miles through the low-density residential foothill region of the city and then flows across the alluvial plain of the city which is characterized by higher density residential and urban neighborhoods. From the city, Saratoga Creek flows north through the cities of San Jose and Santa Clara until it joins San Tomas Aquino Creek near the intersection of San Tomas Expressway and Monroe Street. The major tributaries within this watershed include Sanborn, Bonjetti, and Booker Creeks.³

(3) Calabazas Creek Watershed

The Calabazas Creek watershed covers an area of approximately 20 square miles. The 13.3-mile-long Calabazas Creek originates from the northeast-facing slopes of the Santa Cruz Mountains and flows into the Lower South San Francisco Bay via the Guadalupe Slough. Major tributaries to Calabazas Creek include Prospect, Rodeo, and Regnart Creeks. The Creek traverses through a small portion of unincorporated County land and flows through the city and the cities of Cupertino, Sunnyvale, San Jose, and Santa Clara. Most of the lower watershed is highly urbanized. In contrast, the upper reaches of Calabazas Creek, where it passes through unincorporated County land and into the city's sphere of influence, are rural and the creek is relatively natural and undisturbed.

The lower Calabazas Creek watershed is highly urbanized, predominantly with high-density residential neighborhoods. Areas of heavy industry exist between the Highway 101 and Central Expressway corridors. Commercial development is focused along El Camino Real, Wolfe Road, and Saratoga-Sunnyvale Road.

(4) Santa Clara Groundwater Subbasin

The Santa Clara Subbasin covers a surface area of 297 square miles and forms a northwest-trending, elongated valley bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. The Santa Clara Subbasin underlies most of the municipalities located in the northwest portion of Santa Clara County including the city and surrounding municipalities. Recharge within the Santa Clara Subbasin generally occurs along the margins and southern portion of the subbasin where coarse-grained sediments predominate. The recharge area includes the alluvial fan and fluvial deposits along the edge of the subbasin where high lateral and

³ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

vertical permeability allow surface water to infiltrate the aquifers. The percolation of surface water in recharge areas replenishes unconfined groundwater within the recharge area and contributes to the recharge of principal aquifers in the confined area through subsurface flow. The city is located within the groundwater recharge area along the western portion of the Santa Clara Subbasin.⁴

Based on mapping of the generalized depth to first groundwater,⁵ the area of the city with the shallowest groundwater (depths ranging from 0 to 10 feet) is located in the east-central portion of the city near the area where Saratoga Creek and Wildcat Creek are closest to each other. The depth to first groundwater in the city generally increases with distance away from this area and generally ranges from 10 to 50 feet throughout much of the city, with slightly shallower depths (10 to 20 feet) extending into the west-central portion of the city. The depth to first groundwater is deepest in the southeast portion of the city where it ranges from 50 to over 100 feet.⁶ The depth to groundwater can vary depending on factors such as proximity to creeks/surface water, seasonal rainfall, irrigation, groundwater extraction, leaking utilities, and subsurface conditions (e.g., clay layers that can cause perched groundwater or fault zones that can act as barriers to groundwater flow).

b. Flooding

(1) FEMA Flood Zones

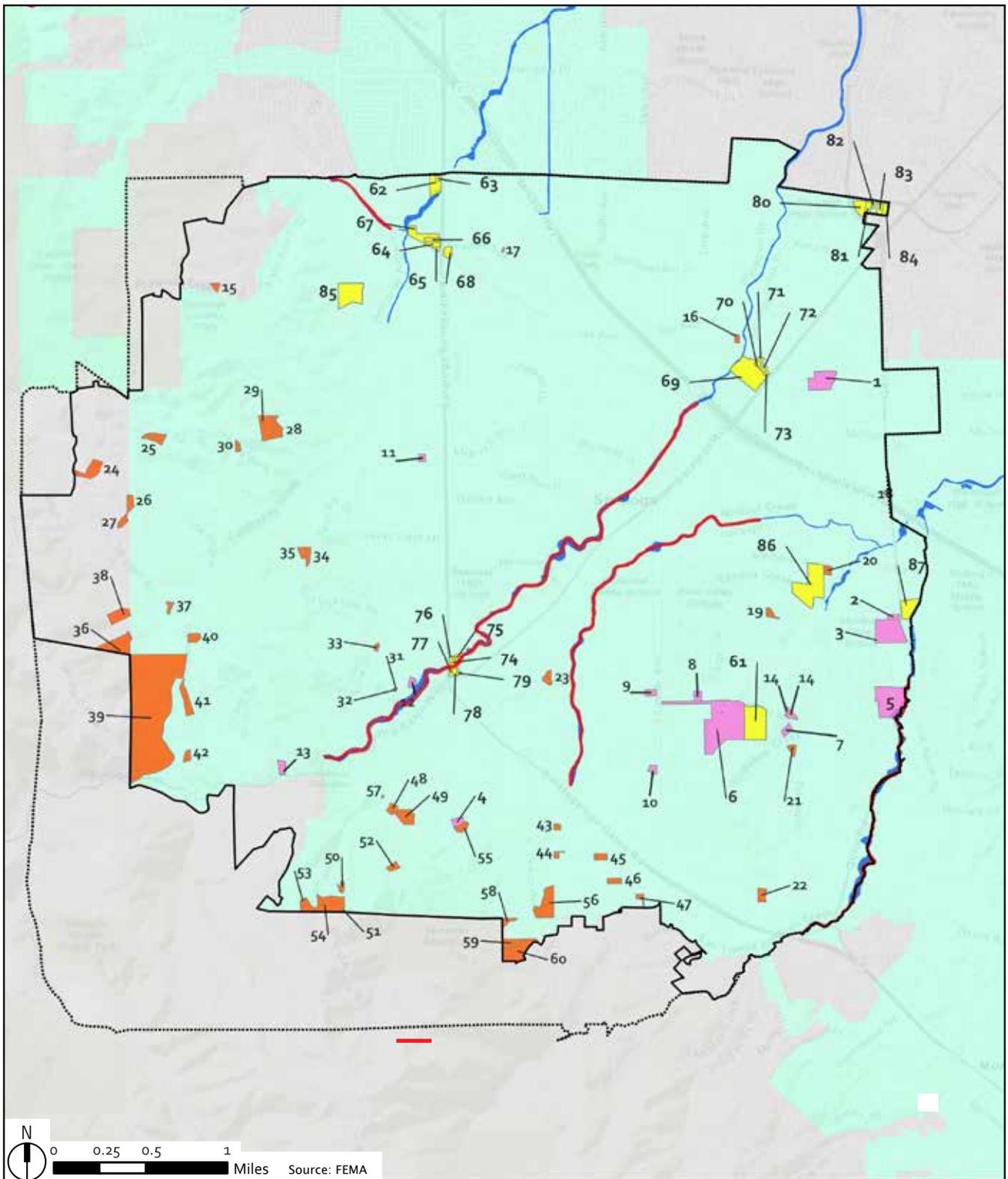
Floodplain mapping prepared by the Federal Emergency Management Agency (FEMA) provides important guidance for the City in planning for flooding events and regulating development within identified flood hazard areas. FEMA's National Flood Insurance Program (NFIP) is intended to encourage State and local governments to adopt responsible floodplain management programs and flood measures. As part of the program, the NFIP defines floodplain and floodway boundaries that are shown on Flood Insurance Rate Maps. The FEMA designated flood hazard zones are shown on Figure IV.H-2.

The majority of the planning area is mapped by FEMA as being within a 500-year floodplain, which are areas that have a 0.2 percent chance of being flooded in a given year. Several creeks and adjacent areas within the city have been identified as 100-year flood hazard zones, including segments of Prospect, Calabazas, Saratoga, Wildcat, Sobey, and San Tomas Aquino Creeks. The

⁴ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

⁵ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

⁶ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.



- | | |
|------------------------------------|------------------------------|
| — Saratoga City Limits | FEMA Flood Zones |
| Saratoga Sphere of Influence | 100 Year Flood Zone (A, AE) |
| ■ Non-Vacant Sites | 500 Year Flood Zone (X) |
| ■ Pipeline Pending Projects | Unstudied, Flooding Possible |
| ■ Vacant Sites | ▨ Floodway |

Figure IV.H-2
Flood Hazards

100-year flood hazard zones are those areas with a 1 percent chance of being flooded in any given year. The 100-year flood hazard zones within the city are primarily within creek channels, with relatively limited areas adjacent to creeks designated as 100-year flood hazard zones. The areas of the city with the most extensive 100-year flood hazard zones adjacent to creeks are along Saratoga Creek in the central and southwestern portion of the city, and along San Tomas Aquino Creek in the southeastern portion of the city.⁷ There are several parcels identified in the Housing Sites Inventory that are intersected by 100-year year flood hazard zones, including Housing Sites 5, 62, 67, 69, 74 through 78, and 87, as shown on Figure IV.H-2.

Segments of some creeks are also designated by FEMA as Regulatory Floodways, including Prospect Creek between the northern boundary of the city and Arroyo De Arguello, Saratoga Creek between Toll Gate Road and State Route (SR-) 85, Wildcat Creek between Saratoga-Los Gatos Road and Portos Drive, and San Tomas Aquino Creek between Saratoga-Los Gatos Road and Old Adobe Road.⁸ A FEMA designated Regulatory Floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.⁹ There are several parcels identified in the Housing Sites Inventory that are intersected by Regulatory Floodways, including Housing Sites 5 and 74 through 78, as shown on Figure IV.H-2.

(2) Dam Inundation

The Lake Ranch Reservoir is located southwest of the planning area and is owned by the San Jose Water Company (SJWC). The earthen dams of the Lake Ranch Reservoir are under the jurisdiction of the Department of Water Resources (DWR), Division of Safety of Dams (DSOD), which provides oversight for the design, construction, and maintenance of many dams in California. The Lake Ranch Reservoir has a capacity of 215 acre-feet, and it is rated as being in satisfactory condition (i.e., no existing or potential dam safety deficiencies are recognized) and having a significant downstream hazard in terms of the downstream population and property at risk from potential dam failure inundation. A significant downstream hazard is defined by DSOD as having no probable loss of human life but can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts.¹⁰

⁷ Federal Emergency Management Agency (FEMA), 2022a. FEMA's National Flood Hazard Layer (NFHL) Viewer. Available at: <https://www.fema.gov/flood-maps/national-flood-hazard-layer>, accessed July 5, 2022.

⁸ Federal Emergency Management Agency (FEMA), 2022a. FEMA's National Flood Hazard Layer (NFHL) Viewer. Available at: <https://www.fema.gov/flood-maps/national-flood-hazard-layer>, accessed July 5, 2022.

⁹ Federal Emergency Management Agency (FEMA), 2022b. FEMA Glossary, Floodway, Available at: <https://www.fema.gov/glossary/floodway>, accessed May 3, 2022.

¹⁰ California Department of Water Resources (DWR), 2021. Dams within Jurisdiction of the State of California, Listed Alphabetically by County, September.

Potential failure of the northern dam of the Lake Ranch Reservoir would result in inundation of Saratoga Creek and surrounding areas. The inundation would remain largely within the banks of Saratoga Creek with inundation depths of over 20 feet in some areas, until reaching the flatter and more populated area of the city. East of Ambric Knolls Road, inundation depths generally up to 4 feet (and as high as 10 feet in some areas) would occur in areas adjacent to Saratoga Creek and outside of the creek channel. East of Saratoga Los Gatos Road, the inundation would become more widespread and generally shallower. Northeast of SR-85, significant inundation (over 1-foot) would be primarily within the Saratoga Creek Channel with only relatively minor inundation (depths generally up to 1-foot) extending through areas in the northeast portion of the city.¹¹ Figure IV.H-3 illustrates the areas that could become significantly inundated (over 1-foot of inundation) in the event that the Lake Ranch Reservoir northern dam fails. The areas of significant dam failure inundation intersect several parcels identified in the Housing Sites Inventory, including Housing Sites 69 and 74 through 78, as shown on Figure IV.H-3.

c. Water Quality

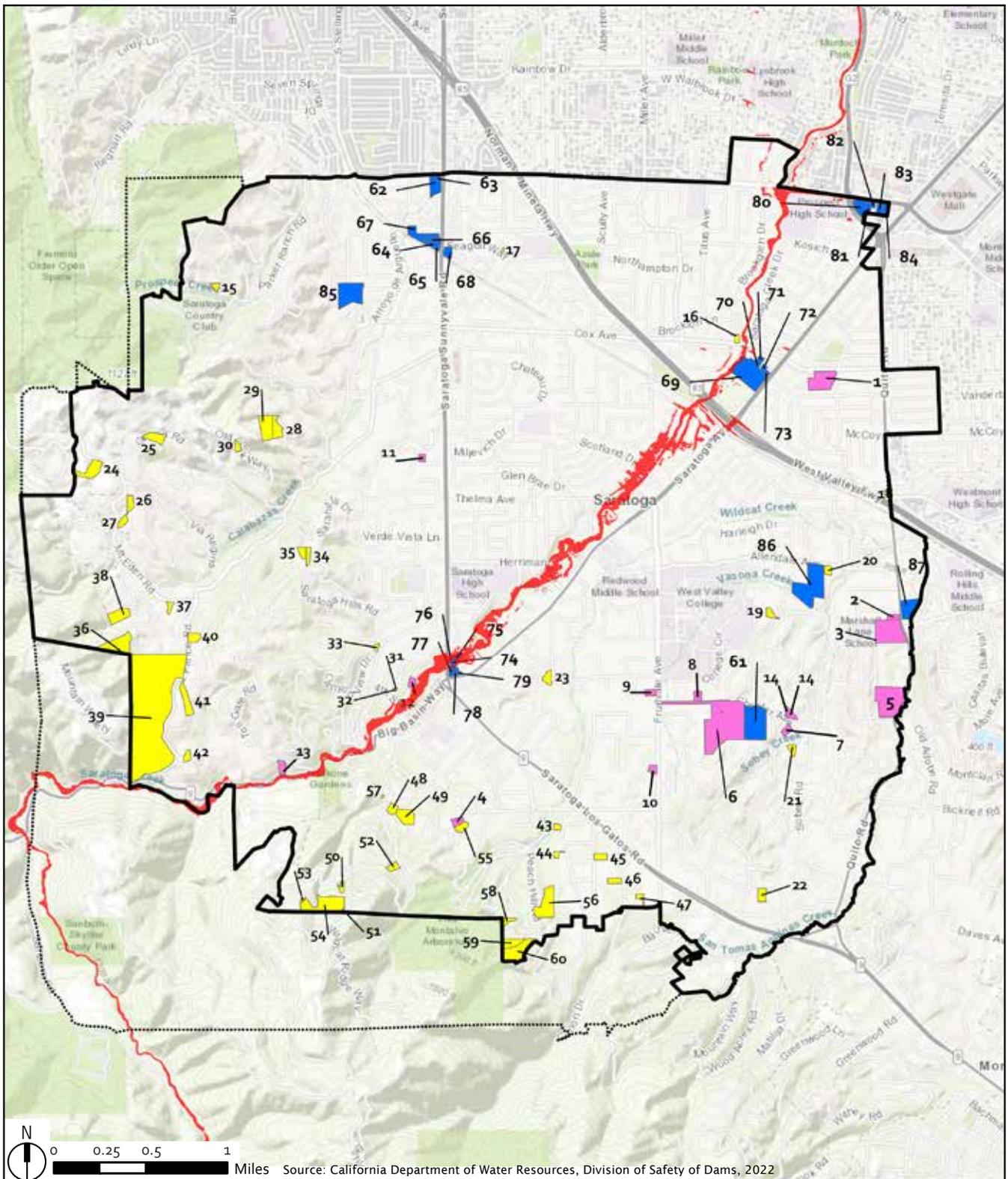
The quality of surface water and groundwater in the planning area is affected by past and current land uses within the planning area and surrounding areas, and by the composition of geologic materials in the area. The State Water Resources Control Board (State Water Board) and nine regional water quality control boards regulate the quality of surface water and groundwater bodies throughout California. The planning area is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB), which is responsible for implementing the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan).¹² The Basin Plan establishes beneficial water uses for waterways, water bodies, and groundwater within the region and is a master policy document for managing water quality in the region.

Calabazas Creek, San Tomas Aquino Creek, and Saratoga Creek are all listed in the Basin Plan as providing the beneficial uses of warm and cold freshwater habitats, wildlife habitat, and water contact and noncontact recreation. Calabazas Creek and Saratoga Creek also provide agricultural supply and groundwater recharge. Saratoga Creek also provides freshwater replenishment, and San Tomas Aquino Creek also provides preservation of rare and endangered species. The Santa Clara Groundwater Subbasin is listed in the Basin Plan as providing the beneficial uses of municipal, process, industrial, and agricultural supply.¹³

¹¹ AECOM, 2021. San Jose Water Company, Lake Ranch Dam Breach Inundation Study, Appendix A-1: Maximum Flood Depth, Lake Ranch North Embankment, Dam Breach Inundation Map, October 6.

¹² San Francisco Bay Regional Water Quality Control Board (SFRWQCB), 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.

¹³ San Francisco Bay Regional Water Quality Control Board (SFRWQCB), 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.



- Saratoga City Limits
- Saratoga Sphere of Influence
- Non-Vacant Sites
- Pipeline Pending Projects
- Vacant Sites
- Dam Breach Inundation Areas

Figure IV.H-3
Dam Failure Inundation Areas

Under Section 303 (d) of the Clean Water Act (described in the *Regulatory Setting* below), states must present the U.S. Environmental Protection Agency (USEPA) with a list of “impaired water bodies,” defined as those water bodies that do not meet water quality standards, which in some cases results in the development of a total maximum daily load (TMDL). On a broad level, the TMDL process leads to a “pollution budget” designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of the sources of pollution contributing to a violation of the water quality standards and identifies the pollutant load reductions or control actions needed to restore and protect the beneficial uses of the impaired waterbody.

The planning area has two water bodies listed under the SFRWQCB’s Section 303 (d) list of impaired water bodies: Saratoga Creek, which is listed as impaired by the pesticide diazinon and trash with a TMDL established for diazinon but not trash; and San Tomas Aquino Creek, which is listed as impaired by trash with no TMDL.¹⁴

d. Water Supply

The city receives its water supply from the SJWC, a privately owned water system that provides water to many residents of Santa Clara County. The SJWC has three sources of potable water supply: purchased (imported) treated water, groundwater, and local surface water. A fourth and growing source of supply is non-potable recycled water. The water supply source for the majority of the city is primarily imported surface water obtained from the Santa Clara Valley Water District (SCVWD), except for the southwest portion of the city which is primarily local surface water.¹⁵ See *Section IV.O, Utilities and Service Systems*, for additional details about water supply and demand.

2. Regulatory Setting

a. Federal

(1) Federal Clean Water Act of 1972

The Federal Clean Water Act of 1972 is the primary federal law that protects the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands. It is administered by the USEPA. The Clean Water Act operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit. The USEPA has delegated its authority to

¹⁴ State Water Resources Control Board (State Water Board), 2018. Final 2018 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), Available at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html, accessed July 11, 2022.

¹⁵ San Jose Water Company, 2022. Water Source Map. Available at: <https://www.sjwater.com/water-source-map>, accessed July 11, 2022.

implement and enforce most of the applicable water quality provisions of this law to the individual states. In California, the provisions are enforced by nine regional water boards under the auspices of the State Water Board.

(2) NPDES Permit Program

Under Section 402 of the Clean Water Act, the discharge of pollutants through a point source into waters of the United States is prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program regulates the discharge of pollutants from municipal and industrial wastewater treatment plants and sewer collection systems, as well as stormwater discharges from industrial facilities, municipalities, and construction sites. In California, implementation and enforcement of the NPDES program is conducted through the State Water Board and the nine regional water boards. The regional water boards set standard conditions for each permittee in their region, which includes effluent limitations and monitoring programs.

(3) Federal Flood Insurance Program

In 1968, Congress created the NFIP in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. FEMA manages the NFIP and creates Flood Insurance Rate Maps that designate 100-year flood hazard zones and delineate other flood hazard areas.

b. State

(1) Porter-Cologne Act and State Implementation of Clean Water Act Requirements

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Water Quality) was promulgated in 1969. It established the State Water Board and divided the State into nine hydrologic regions, each overseen by a regional water board. The State Water Board is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine regional water boards. The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. The planning area is within the jurisdiction of the SFRWQCB, which enforces compliance with water quality objectives for beneficial uses of surface waters.

(2) NPDES Construction General Permit

Construction projects disturbing more than 1 acre of land are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).

To obtain coverage under the Construction General Permit, the project applicant must provide via electronic submittal, a Notice of Intent, a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The permit also covers linear underground and overhead projects, such as pipeline installations. Construction General Permit activities are regulated at a local level by the Regional Water Board.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). Receiving water risk is dependent on whether the project would discharge into sediment-sensitive receiving waters. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed (and more details of the timing of the construction activity are known).

The performance standard in the Construction General Permit is that dischargers shall minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and best management practices (BMPs) that achieve Best Available Technology for treatment of toxic and non-conventional pollutants and Best Conventional Technology for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. Operation of BMPs must be overseen by a Qualified SWPPP Practitioner that meets the requirements outlined in the permit.

The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program may include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

The Construction General Permit allows non-stormwater discharge of groundwater dewatering effluent if the water is properly filtered and treated to remove sediment and pollutants using appropriate technologies such filtration, settling, coagulant application with no residual coagulant discharge, minor odor or color removal with activated carbon, small scale peroxide addition, or other minor treatment. Testing of receiving waters would also be required prior to and during the discharge. The discharge of dewatering effluent is authorized under the Construction General Permit if the following conditions are met:

- The discharge does not cause or contribute to a violation of any water quality standard.
- The discharge does not violate any other provision of the Construction General Permit.
- The discharge is not prohibited by the applicable Basin Plan.
- The discharger has included and implemented specific BMPs required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment.
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants.
- The discharge is monitored and meets the applicable numeric action levels.
- The discharger reports the sampling information in the annual report.

If any of the above conditions are not satisfied, the discharge of dewatering effluent is not authorized by the Construction General Permit. If the dewatering activity is deemed by the Regional Water Board not to be covered by the Construction General Permit or other NPDES permit, and discharge of groundwater to the storm drain system is planned, then the discharger would be required to prepare a Report of Waste Discharge, and if approved by the Regional Water Board, be issued site-specific Waste Discharge Requirements (WDRs) under NPDES regulations.

(3) Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act requires local agencies to form groundwater sustainability agencies (GSAs) for high and medium priority basins and develop and implement groundwater sustainability plans to avoid undesirable results, mitigate overdraft, and reach sustainability within 20 years of implementing their sustainability plans. The California DWR is charged with classifying groundwater basins in California as either high, medium, low, or very low priority. The Santa Clara Subbasin is classified by DWR as a high priority basin that is not critically overdrafted. The SCVWD is the GSA for the Santa Clara Subbasin and oversees the preparation

and implementation of the Groundwater Management Plan (GMP) for the Santa Clara and Llagas Subbasins.¹⁶

(4) Division of Safety of Dams

The California Water Code entrusts dam safety regulatory authority to DSOD, which provides oversight of the design, construction, and maintenance of approximately 1,250 non-federally owned dams within its jurisdiction. DSOD inspects jurisdictional dams to assess if the dams and their related structures (e.g., gated spillways, saddle dams, etc.) are safe for continued use and performing as intended. After inspection and review, DSOD may direct dam owners to make necessary repairs. DSOD conducts independent engineering analyses to validate proposed designs for dam repairs, alterations, enlargements, new dam construction, and removals that are submitted by dam owners or their consultants. DSOD reevaluates existing dams as changes in the state-of-practice occur that could impact dam safety. When necessary, DSOD may immediately direct a dam owner to implement remedial means necessary to protect life and property; or DSOD may impose a reservoir restriction that limit the reservoir's water surface level until repairs or remediation work is completed.

c. Regional

(1) Santa Clara Valley Water District

The SCVWD is an independent special district that provides wholesale water supply, groundwater management, flood protection, and stream stewardship for its service area, which includes all of Santa Clara County. The SCVWD manages the groundwater underlying the Santa Clara and Llagas Subbasins. In November 2021 the SCVWD adopted the current GMP for the Santa Clara and Llagas Subbasins. The goals of the GMP are to optimize water supply reliability, minimize additional land subsidence, and protect the groundwater supply from potential contamination and sea water intrusion. The SCVWD coordinates with land use agencies to review certain EIRs, land use proposals (e.g., general plans) and water supply assessments to ensure alignment with SCVWD's policies, water supply goals, and planning assumptions. The SCVWD owns property and easements along San Tomas Aquino, Saratoga, Wildcat, Calabazas, and Rodeo Creeks which are used to protect habitat and recharge groundwater.¹⁷

¹⁶ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

¹⁷ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

(2) Municipal Regional Permit

Pursuant to Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the city are regulated under the SFRWQCB's Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008, adopted October 14, 2009 (Municipal Regional Permit (MRP)).¹⁸ The MRP is overseen by the SFRWQCB, and local municipalities (the permittees) are responsible for ensuring compliance with the MRP.

The MRP describes the following: discharge prohibitions under Provisions A.1 and A.2; receiving water limitations which are site-specific interpretations of water quality standards from applicable water quality control plans under Provisions B.1 and B.2; compliance with discharge prohibitions and receiving water limitations under Provision C.1; and municipal operations BMPs to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, compliance requirements inspection, and routine repair and maintenance activities of municipal facilities and infrastructure under Provision C.2. Additional provisions of the MRP that are pertinent to future development under the General Plan are discussed below.

Provision C.3 of the MRP addresses post-construction stormwater management requirements for regulated projects, which are new development and redevelopment projects that create or replace 10,000 square feet or more of impervious surface, and special land use categories that create or replace 5,000 square feet or more of impervious surface. Where a redevelopment project results in an alteration of more than 50 percent of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project). Provision C.3 requires regulated projects to implement Low Impact Development (LID) source control, site design, and stormwater treatment. LID employs principles such as preserving and recreating natural landscape features and minimizing impervious surfaces to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention areas, bioswales, and planter/tree boxes.

¹⁸ San Francisco Bay Regional Water Quality Control Board (SFRWQCB), 2015. San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008, November 19.

Provision C.3.g of the MRP pertains to hydromodification management, which requires regulated projects that create or replace 1-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions to ensure that stormwater discharges from the project do not cause an increase in the erosion potential of the receiving stream over the existing condition.

Provision C.3.i of the MRP requires small projects which create and/or replace between 2,500 and 10,000 square feet of impervious surface and detached single family home projects which create and/or replace 2,500 square feet or more of impervious surface to install site design measures that reduce runoff and pollutants in runoff. Site design measures may include installing permeable pavement surfaces and directing runoff into cisterns, rain barrels, and vegetated areas.

Provision C.6 of the MRP pertains to construction site control and requires permittees to implement a construction site inspection and control program at all construction sites. Inspections must be performed to confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers.

Provision C.7 of the MRP pertains to public information and outreach regarding the impacts of stormwater pollution on receiving waters and potential solutions to mitigate the pollution by encouraging implementation of appropriate solutions.

Provision C.8 of the MRP pertains to water quality monitoring through regional collaboration, countywide or area-wide programs, or third-party monitoring.

Provision C.9 of the MRP pertains to pesticide toxicity control and requires permittees to implement a pesticide toxicity control program that addresses their own and others' use of pesticides within their jurisdictions that pose a threat to water quality and that have the potential to enter the municipal conveyance system. This provision implements requirements of the TMDL for diazinon and pesticide-related toxicity for urban creeks in the region.

Provision C.10 of the MRP pertains to trash load reduction and requires permittees to reduce trash loads from municipal separate storm sewer systems by 100 percent (i.e., complete trash capture) by July 1, 2022.

Provision C.11, C.12, and C.13 of the MRP pertain to the control of mercury, polychlorinated biphenyls (PCBs), and copper, respectively. The MRP requires permittees to implement source and treatment control measures and pollution prevention strategies for mercury and PCBs and requires permittees to prohibit the discharge of wastewater to storm drains generated from the installation, cleaning, treating, and washing of the surface of copper architectural features, including copper roofs.

Provision C.15 of the MRP pertains to exempted unpolluted non-stormwater discharges and conditionally exempted non-stormwater discharges that are potential sources of pollutants that are permitted if appropriate control measures are implemented to eliminate adverse impacts to water quality.

(3) Santa Clara Valley Urban Runoff Pollution Prevention Program

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is an association of 13 cities and towns in the Santa Clara Valley, together with the County of Santa Clara and the SCVWD, that are regulated under the MRP to discharge stormwater to South San Francisco Bay. The MRP requires each SCVURPPP municipal agency to develop and implement a long-term Green Stormwater Infrastructure (GSI) Plan that describes how the agency will identify and implement local GSI projects. The SCVURPPP and SCVWD developed a Stormwater Resource Plan that supports these GSI Plans by identifying and prioritizing multi-benefit projects that are eligible for future State implementation grant funds.¹⁹

The SCVURPPP incorporates regulatory, monitoring, and outreach measures aimed at improving the water quality of South San Francisco Bay and the streams of the Santa Clara Valley to reduce pollution in urban runoff to the “maximum extent practicable.” The SCVURPPP assists its members with maintaining compliance with the MRP and promotes stormwater pollution prevention within that context. Participating agencies (including the City) must meet the provisions of the MRP by ensuring that new development and redevelopment mitigate water quality impacts to stormwater runoff both during the construction and operation of projects.²⁰

The SCVURPPP has also developed a C.3 Stormwater Handbook²¹ which assists its members with compliance with Provision C.3 of the MRP by helping developers, builders, and project applicants include appropriate post-construction stormwater controls in their projects to meet local municipal requirements and requirements of the MRP.

(4) West Valley Clean Water Authority

The West Valley Clean Water Authority (WVCWA) serves as the Stormwater Pollution Prevention Authority for the City and nearby cities. The WVCWA facilitates collaborative stormwater management and pollution prevention efforts to assist the West Valley communities to comply

¹⁹ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

²⁰ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

²¹ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2016. C.3 Stormwater Handbook, Guidance for Implementing Stormwater Requirements for New Development and Redevelopment Projects, June.

with the MRP and improve water quality, and assists the West Valley communities in preparing annual reports documenting compliance with the MRP. As discussed in *Section IV.G, Hazards, Hazardous Materials, and Wildfires*, the WVCWA developed an assessment protocol and methodology for managing PCBs in applicable structures planned for demolition in to prevent potential water quality impacts from PCBs in building materials.

d. Local

(1) Hillside Specific Plan

The amended Hillside Specific Plan was adopted in June 1994, and includes goals, policies, and action programs for development in hillside areas in the western portion of the planning area and in a few areas in the southern portion of the planning area. Policies and action programs related to hydrology and water quality that are applicable to development under the proposed project are listed below.

Site Grading Policy 7: Correction of stream erosion problems shall be accomplished using natural and/or natural appearing materials. Such improvements shall be considered engineered grading (and therefore be subject to Planning Commission approval).

Site Grading Policy 11: Placing of creeks in culverts for private land use shall not be permitted except in extreme emergencies (i.e., potential loss of structure(s), economic considerations, health, safety, and welfare). Use of culverts for road crossings may be permitted.

Site Grading Action Program 1: Revise Grading Ordinance accordingly

Ecology Policy 4: Minimize disturbance of creek ecosystems by placing riparian areas in open space.

Ecology Policy 7: Revegetate graded areas as soon as feasible with native plants.

Ecology Action Program 1: Review and condition tentative maps accordingly.

Conservation Policy 2: Preserve natural (creekside) vegetation to the greatest extent feasible.

Conservation Action Program 3: Review and revise Grading Ordinance with consideration of water quality.

Hydrology and Flooding Policy 2: City Council, Planning Commission and City Staff should continue all available efforts to secure remedy to flooding and erosion problems along the main Calabazas and in already developed areas.

Hydrology and Flooding Policy 3: Long-term maintenance of natural water courses of smaller size than would qualify for Santa Clara Valley Water District jurisdiction should be by homeowners in tributary areas using private resources and with City review and approval of any proposed improvements or maintenance.

Hydrology and Flooding Policy 4: Continue (and expand to include the Specific plan Area) pro-rata share fees for drainage, insuring that they are large enough to pay all cost of necessary facilities to eliminate flooding at the 100-year storm level.

Hydrology and Flooding Policy 5: Recommend continuing support of long-term study of hydrology of area.

Hydrology and Flooding Action Program 1: Work with the Santa Clara Valley Water District to develop appropriate procedures for the above policies.

Sanitary Sewer Service Policy 1: Require all new residences on newly created lots to hook up to a sanitary sewer system to avoid groundwater contamination problems.

Site and Storm Drainage Policy 1: Developer, through actual improvements and fees, to provide for the installation and maintenance of Storm Drain System.

Site and Storm Drainage Policy 2: All major facilities to be designed to provide for 100-year storms – local and minor facilities design provide for 20-year storms.

Site and Storm Drainage Policy 3: Landscaping and resultant drainage plan to be approved with Design Review approval of the residence prior to issuance of permits.

Site and Storm Drainage Policy 4: Site drainage plans to be approved so as to not impact adjacent properties.

Site and Storm Drainage Action Program 1: Increase improvement criteria and fees if called for in study.

(2) Saratoga General Plan

The General Plan includes the following relevant policies and implementation measures (IM) that assist in reducing or avoiding potential impacts related to hydrology and water quality:

Land Use Element

Policy LU-6.1: Incorporate specific standards and requirements into the Zoning Ordinance to preserve and protect sensitive watershed areas on hillsides within the community.

Policy LU-6.2: Development proposals shall incorporate stormwater quality features, including Low Impact Development (LID) site design, source control and treatment measures, such as infiltration and biotreatment to protect surface and subsurface water quality consistent with the City's stormwater NPDES permit and Green Stormwater Infrastructure (GSI) Plan.

IM LU.6.a.: Continue to apply standard conditions of project approval to ensure development applications conform to stormwater pollution prevention best management practices consistent with the City's stormwater NPDES permit and GSI Plan.

IM LU-9.b: Require that all development applications in the hillsides include a grading plan, that cut and fill quantities be provided, and that access roads and dwelling size be consistent with the objective of minimizing grading.

Open Space and Conservation Element

Policy OSC-10.1: Retain surface watercourses in their natural condition to the greatest extent possible through sound land use planning, community design, and site planning.

Policy OSC-10.2: Concentrate development in those portions of the community least susceptible to soil erosion and minimize grading and the introduction of impervious surfaces. Where appropriate, consider the use of on-site site low impact development (LID) or green infrastructure elements, such as stormwater capture, infiltration, and biotreatment, to minimize stormwater runoff from sites.

Policy OSC-10.3: Implement land use controls to protect watershed lands on the upper elevations of hillsides.

IM OSC-10.a: Coordinate review of development projects adjacent to watercourses with the Santa Clara Valley Water District and other applicable agencies.

IM OSC-10.b: Ensure erosion control measures are required with each development project as part of the development approval process. Project applicants shall demonstrate that project implementation will not result in increases in the peak flow runoff to adjacent lands or drainage facilities.

Safety Element

Policy SAF-3.1: All proposed projects adjacent to floodways and floodplains that could affect Water District right-of-way, should be referred to the District for review and comments.

Policy SAF-3.2: The City shall continue to participate in the National Flood Insurance Program.

IM SAF-3.2a: The City will maintain and enforce a Floodplain Management Ordinance, based on the national Model Floodplain Management Ordinance to satisfy the requirements of the National Flood Insurance Program.

Policy SAF-3.3: The City shall continue to enforce its existing regulations pertaining to impervious coverage to reduce potential hazards from excessive run-off.

IM SAF-3.3a: Implement the City's impervious coverage regulations by continuation of existing zoning regulations as contained in the City Code.

(3) Saratoga Municipal Code

The Saratoga Municipal Code contains the City's regulations and requirements that reduce and mitigate potential impacts to hydrology and water quality.

Section 6-15.070 of the Municipal Code prohibits the discharge of pollutants into storm drains and water courses, and Section 16-15.070 prohibits the obstruction of watercourses.

Article 14-20 of the Municipal Code includes requirements for a grading plan for sites where the slope of any part of the property exceeds 10 percent or where the property abuts existing developed lots, which must show how runoff of surface water will be controlled and the ultimate disposal of all surface waters.

Articles 15-11, 15-12, 15-13, 15-17, 15-18, and 15-20 of the Municipal Code contain site coverage requirements that limit the amount of impervious surfaces within the city zoning districts. These site coverage requirements are scaled so that, on larger lots, less lot coverage (by percentage of lot area) is allowed.

Articles 15-45 and 15-46 of the Municipal Code include requirements for creek protection setbacks for new construction sites.

Article 15-47 of the Municipal Code (Water Efficient Landscaping) sets local standards for water efficient irrigation. Section 15-47.060 stipulates that stormwater best management practices be implemented into each project landscape and irrigation plan for each project grading design plan to minimize runoff and erosion, and increase on-site rainwater retention and infiltration.

Article 16-17 of the Municipal Code (Excavation and Grading) provides standards and requirements relating to drainage and erosion control during excavation and grading activities. Section 16-17.120 requires the preparation of drainage plans and requires that swales or ditches

on terraces must be paved with reinforced concrete. Section 16-17.130 also requires that the faces of cut and fill slopes shall be prepared and maintained to control against erosion.

Article 16-66 of the Municipal Code (Floodplain Management) sets forth rules and regulations to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. Section 16-66.060 requires that a development permit be obtained before any construction or other development begins within any area of special flood hazard as defined by FEMA. The applications must include: 1) plans showing the nature, location, dimensions, and elevation of the area in question; and 2) existing or proposed structures, fill, storage of materials, and drainage facilities and their locations/elevations. Section 16-66.070 designates the City Manager or his/her designee as the Floodplain Administrator who is responsible for reviewing development applications for special flood hazard areas and granting or denying permits in accordance with the requirements of the Municipal Code. Section 16-66.080 indicates that the Floodplain Administrator must ensure that the proposed development does not adversely affect²² the carrying capacity of areas where base flood elevations have been determined and a Regulatory Floodway has not been designated. When base flood elevation data has not been provided, the Floodplain Administrator must obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source in order to administer Sections 16-66.090 through 16-66.140 of the Municipal Code. Any such information shall be submitted to the City Council for adoption. This section also includes requirements related to alteration or relocation of a watercourse, including notifying adjacent communities, DWR, and FEMA; and assuring that the flood-carrying capacity within the altered or relocated portion of such watercourse is maintained. Within six months of project completion or availability of information concerning an increase or decrease in base flood elevation resulting from alteration or relocation of a watercourse, whichever comes first, the Floodplain Administrator must submit or assure that the permit applicant submits technical or scientific data to FEMA for a letter of map revision (LOMR).

Section 16-66.090 describes construction standards for FEMA designated 100-year Flood Hazard Zones, including requirements for anchoring, use of construction materials and methods and utility equipment that are resistant to flood damage, providing adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures, placing lowest floor elevations at or above base flood elevations, floodproofing of non-residential structures, and requirements for recreational vehicles.

Section 16-66.100 describes standards for utilities and indicates that all new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate the

²² The municipal codes defines "adversely affects" as meaning that the cumulative effect of the proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the city.

infiltration of floodwaters into the system and the discharge from systems into floodwaters, and on-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Section 16-66.110 describes standards for subdivisions and indicates that all preliminary subdivision proposals must identify the flood hazard area and the elevation of the base flood. All subdivision plans must provide the elevations of proposed structures and pads. If the site is filled above the base flood, the final pad elevation must be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator. All subdivision proposals must be consistent with the need to minimize flood damage. All subdivision proposals must have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize flood damage. All subdivisions must provide adequate drainage to reduce exposure to flood hazards.

Section 16-66.140 prohibits encroachments in FEMA designated Regulated Floodways, including fill, new construction, substantial improvement, and other new development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in the base flood elevation during the occurrence of the base flood discharge.

(4) Saratoga Green Stormwater Infrastructure (GSI) Plan

The City of Saratoga has prepared a GSI Plan²³ to guide the siting, implementation, tracking, and reporting of GSI projects on City-owned land as required by the MRP. The GSI Plan includes maps of the City's prioritized areas and lays out the City's GSI implementation strategy. Key elements of the strategy include identification of GSI opportunities in capital projects, coordination with private development, and aligning GSI goals and policies with the City's General Plan to achieve multiple benefits and provide safer, sustainable, and attractive public streetscapes. The City has identified the following parcel-based projects as having potential to include GSI:²⁴

- Sholen Goetting, Three Lot Subdivision
- Marigny Villa, Twelve Residential Townhomes and one Common Building
- Saratoga Lane, Twelve Residential Townhomes
- Saratoga Estates Single Family Residences
- Saratoga Retirement Community

²³ City of Saratoga, 2019. Green Stormwater Infrastructure Plan, Final Draft, August 21.

²⁴ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2022. Stormwater Treatment Measure Data Portal, Available at: <https://scvurppp.org/gsi/>, accessed July 18, 2022.

3. Impacts and Mitigation Measures

Potential impacts to hydrology and water quality resulting from implementation of the project are discussed below. The hydrology and water quality related policies and implementation actions in the proposed project are the same as previously existing policies and implementation actions (aside from updates to reflect current conditions or updated priorities), therefore no hydrology and water quality related impacts from updating the policies or implementation actions of the project would occur. The impact analysis is based on an assessment of baseline conditions for the planning area, including watersheds and surface waters, groundwater, and floodplains, as described above under the *Setting* section. This analysis identifies potential impacts to hydrology and water quality from construction, operation, and maintenance activities related to future residential development that could occur under the proposed project.

a. Significance Criteria

According to the CEQA Guidelines Appendix G, the proposed project would have a significant impact related to hydrology and water quality if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (1) result in substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site; (3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) impede or redirect flood flow.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

b. Analysis and Findings

The following discussion describes the potential impacts associated with hydrology and water quality that would result from the project.

(1) Water Quality (Criterion 1)

Construction Period

Development under the project would involve construction activities including excavation and grading which can increase the potential for erosion and sedimentation from stormwater runoff and for the leaching/transport of potential contaminants from disturbed soil. Construction activities would also involve the use of construction materials, equipment, and hazardous materials that can be sources of stormwater and groundwater pollution. If stormwater contacts disturbed soil and/or improperly stored hazardous materials, sediments and contaminants could be entrained in stormwater runoff that could reach waterways and degrade water quality, potentially resulting in a violation of water quality standards.

All future development would be subject to existing water quality regulations and policies, as described under the *Regulatory Setting* section above. Specifically, construction activities for future developments that disturb more than 1 acre of land would be required to comply with the requirements of the Construction General Permit. In accordance with the Construction General Permit requirements, a SWPPP would be developed and implemented to identify all potential pollutants and their sources, including a list of site-specific BMPs to reduce discharges of construction-related stormwater pollutants. The SWPPP would include a detailed description of controls to reduce pollutants and outline maintenance and inspection procedures. The SWPPP would be required to be kept on-site and be made available to SFRWQCB inspectors. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing and maintaining construction exits, and perimeter controls. The SWPPP would also define proper building material staging areas, paint and concrete washout areas, proper equipment/vehicle fueling and maintenance practices, controls for equipment/vehicle washing, and allowable non-stormwater discharges, and would include a spill prevention and response plan.

Compliance with the requirements of the Municipal Code; implementation of the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan; and implementation of the City's construction site inspection and control program in accordance with Provision C.6 of the MRP would further ensure that construction activities would not result in significant impacts to water quality, including construction activities that disturb less than 1 acre of land.

Groundwater dewatering, which may need to occur for subsurface construction activities related to future development, would generate effluent that would require special management. Dewatering effluent could have high turbidity (suspended sediment) and could contain other contaminants. Turbid or contaminated groundwater could cause degradation of the receiving water quality if discharged directly to storm drains without treatment. Any groundwater dewatering would be limited in duration and the discharge of dewatering effluent would be

subject to permits from the West Valley Sanitation District or the SFRWQCB, depending on whether the discharge would be to the sanitary sewer or storm drain system, respectively.

Under existing State law, it is illegal to allow unpermitted non-stormwater discharges to receiving waters. As stated in the Construction General Permit, non-storm water discharges directly to receiving waters or the storm drain system have the potential to negatively impact water quality. The discharger must implement measures to control all non-stormwater discharges during construction, and from dewatering activities associated with construction. Discharging any pollutant-laden water from a dewatering site or sediment basin into any receiving water or storm drain that would cause or contribute to an exceedance of water quality objectives is prohibited (i.e., illegal).²⁵

The Construction General Permit allows the discharge of non-contaminated dewatering effluent if the water is properly filtered or treated, using appropriate technology. These technologies include, but are not limited to, retention in settling tanks (where sediments settle out prior to discharge of water) and filtration using gravel and sand filters (to mechanically remove the sediment). If the dewatering activity is deemed by the SFRWQCB not to be covered by the Construction General Permit due to contamination from fuels or volatile organic compounds (VOCs), the discharge may be allowed under the NPDES Permit No. CAG912002 issued by the SFRWQCB under Order No. R2-2017-0048,²⁶ which covers the discharge or reclamation of extracted and treated groundwater resulting from the cleanup of groundwater polluted by VOCs, fuel leaks, fuel additives, and other related wastes. If the discharge is not covered by any existing general NPDES permits, then the discharger could potentially prepare a Report of Waste Discharge, and if approved by the SFRWQCB, be issued site-specific WDRs under the NPDES regulations. Site-specific WDRs contain rigorous monitoring requirements and performance standards that, when implemented, ensure that receiving water quality is not substantially degraded.

If the water is not suitable for discharge to the storm drain (receiving water), as discussed above, dewatering effluent may be discharged to the sanitary sewer system if West Valley Sanitation District's discharge criteria are met. These include, but are not limited to, application of pretreatment technologies which would result in achieving compliance with the wastewater discharge limits. Discharges to West Valley Sanitation District's facilities must occur under a permit. West Valley Sanitation District manages the water it accepts into its facilities so that it

²⁵ State Water Resources Control Board (SWRCB) Division of Water Quality, 2009. Construction General Permit Fact Sheet. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ.

²⁶ San Francisco Bay Regional Water Quality Control Board (SFRWQCB), 2019. Order No. R2-2017-0048, NPDES Permit No. CAG912002, General Waste Discharge Requirements for Discharge or Reclamation of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by VOCs, Fuel Leaks, Fuel Additives, and Other Related Wastes (VOC and Fuel General Permit). Effective January 1, 2019.

can ensure proper treatment of wastewater at the San Jose/Santa Clara Water Pollution Control Plant prior to discharge.

If it is infeasible to meet the requirements of the Construction General Permit or other general NPDES permit, acquire site-specific WDRs, or meet the West Valley Sanitation District's requirements, the construction contractor would be required to transport the dewatering effluent off-site for treatment sufficient to meet requirements.

Compliance with State, regional, and local regulations; implementation of the policies, action programs, and implementation measures of the General Plan and Hillside Specific Plan; and implementation of the City's construction site inspection and control program would ensure protection of receiving water quality during construction activities. Therefore, impacts related to water quality during construction associated with residential development under the project would be less than significant.

Operational Period

Development under the project would increase the amount and density of residential land uses in the city, which could increase impervious surfaces and create additional sources of potentially polluted runoff. Increases in impervious surfaces could increase the rate and volume of stormwater discharges, which could result in erosion and sedimentation in receiving waters. Debris and particulates that gather on impervious surfaces such as paved areas and roofs of buildings could also add heavy metals and sediment to the pollutant load in runoff. Additional potential sources of polluted runoff associated with development under the General Plan would include motor vehicle traffic, the use of fertilizers/pesticides for landscaped areas, and increase trash generation. Pollutants that may be transported in runoff from parking areas, roadways, and residential developments that would be constructed under the General Plan include sediment, metals, organic compounds (e.g., diesel, gasoline, and oil), trash, debris, fertilizers, and pesticides.

All future development would be subject to existing water quality regulations and policies, as described above under the *Regulatory Setting* section. Future development projects under the project that would create or replace 10,000 square feet or more of impervious surface and special land use categories²⁷ that create or replace 5,000 square feet or more of impervious surface would be required to comply with the MRP Provision C.3 requirements for LID source control, site design, and stormwater treatment. Compliance with the MRP also requires future developments under the General Plan that would create and/or replace between 2,500 and 10,000 square feet of impervious surface to install site design measures that reduce runoff and pollutants in runoff,

²⁷ Special land use categories include auto service facilities, retail gasoline outlets, restaurants, or stand-alone uncovered parking lots.

such as installing permeable pavement surfaces and directing runoff into cisterns, rain barrels, and vegetated areas. The policies of the Hillside Specific Plan also require all new residences to connect to a sanitary sewer system to avoid groundwater contamination problems.

The Municipal Code includes requirements that limit the amount of new impervious surfaces that can be created by developments based on the zoning districts; however, any increase in impervious surfaces can result in increased runoff if stormwater is not appropriately captured and managed. Future developments under the project that create or replace 1-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions would also be required to comply with hydromodification management requirements of Provision C.3.g of the MRP, which requires that stormwater discharges associated with new development or redevelopment do not cause an increase in the erosion potential of the receiving stream over the existing condition. This would also reduce potential impacts to water quality related to erosion and siltation of creeks. The General Plan implementation measure IM OSC-10.b requires that applicants for development projects demonstrate that project implementation would not result in an increase in the peak flow runoff to adjacent lands or drainage facilities, which would ensure that development under the project would not contribute to erosion and siltation in creeks due to increased runoff. Methods that can be used to manage runoff so that it does not exceed pre-development conditions include directing runoff to vegetated areas, capturing runoff in cisterns and retention areas, and use of permeable pavement and bioswales. The Municipal Code contains additional requirements to protect water quality during operation of developments, including incorporating stormwater BMPs into landscaping, irrigation, and grading plans to minimize erosion and runoff, and to increase on-site retention and infiltration of stormwater.

In accordance with Provision C.g of the MRP, the City is required to implement a pesticide toxicity control program that addresses their own and others' use of pesticides within their jurisdiction that pose a threat to water quality and that have the potential to enter the municipal conveyance system. The City complies with Provision C.g of the MRP by controlling the City's contractor's use of pesticides, implementing integrated pest management techniques (e.g., converting turf to other surfaces and pruning to reduce pests rather than applying pesticides) which reduce the need for pesticides, and training municipal employees. The SCVURPPP also assists with implementation of the pesticide toxicity control program by providing countywide public outreach at the point of purchase (i.e., at stores) for pesticide consumer products and by providing outreach to pest control contractors.²⁸

²⁸ Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 2019. Santa Clara Basin Stormwater Resource Plan, Final, August.

In accordance with Provision C.10 of the MRP, the City is required to reduce trash loads in stormwater runoff. In 2021, the City had achieved an 87 percent reduction of trash in stormwater runoff through the installation and maintenance of full-trash capture devices and other trash control measures.²⁹ In 2022, the City had achieved a 96 percent reduction of trash in stormwater runoff.³⁰ The City is required by the MRP to achieve 100 percent (i.e., complete trash capture) by June 30, 2025. To achieve compliance, the City is in the process of implementing installation of trash capture facilities in key inlets in commercial areas, including the Gateway and Village areas of the city. Compliance with the MRP and relevant Municipal Code requires, and implementation of the policies, implementation measures, and action programs of the General Plan and Hillside Specific Plan would ensure the protection of water quality during the operation of developments under the project. As such, implementation of the of the proposed project would result in less-than-significant impacts to water quality.

Impact HYD-1: Development under the project could contribute to the impairment of water quality by trash. (S)

Water quality in Saratoga Creek and San Tomas Aquino Creek is impaired by trash.³¹ Development under the project could generate additional trash which could contribute to the impairment of these creeks because the City has not yet achieved 100 percent trash capture. This is a potentially significant impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-1: The City shall install additional full trash capture systems and/or perform optional trash offsets as necessary to ensure 100 percent trash capture for the city prior to the implementation of development under the project. The City shall implement trash capture activities that account for development under the project to ensure that the city maintains 100 percent trash capture during the operation of developments under the project. (LTS)

Compliance with the MRP and Municipal Code requirements, implementation of Mitigation Measure HYD-1, and implementation of the policies, implementation measures, and action programs of the General Plan and Hillside Specific Plan would ensure the protection of water

²⁹ West Valley Clean Water Authority (WVCWA), 2021. Annual Report, FY 2020-21, City of Saratoga, September 30.

³⁰ West Valley Clean Water Authority (WVCWA), 2022. Annual Report, FY 2021-22, City of Saratoga, September 30.

³¹ State Water Resources Control Board (State Water Board), 2018. Final 2018 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), Available at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html, accessed July 11, 2022.

quality during the operation of developments under the project. As such, implementation of the proposed project would result in less-than-significant impacts to water quality.

(2) Depletion of Groundwater Resources (Criterion 2)

As discussed under Criterion 1 above, groundwater dewatering may be performed during construction of future developments under the project. As discussed under the *Setting* section above, the depth to groundwater throughout much of the city ranges from 10 to 50 feet, and therefore, groundwater dewatering is not likely to be required for construction activities throughout much of the city. If construction-related dewatering would be required, it would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in significant impacts related to depletion of groundwater supplies.

Development under the project could lead to an increased demand for water, which could lead to an increase in groundwater pumping. As discussed under the *Setting* section above, the city receives its water supply from SJWC, which has three sources of potable water supply: purchased (imported) treated water, groundwater, and local surface water. The water supply source for majority of the city is primarily imported surface water obtained from the SCVWD, except for the southwest portion of the city which is primarily local surface water.³² In the North County portion of the Santa Clara Subbasin, which includes the planning area, SJWC is the largest individual user of groundwater, accounting for 57 percent of total North County groundwater pumping. Since the 1930s, SCVWD's water supply strategy has been to maximize the conjunctive management of surface water and groundwater. Annual groundwater pumping far exceeds what is replenished naturally, so SCVWD ensures water supply reliability with its recharge activities. SCVWD replenishes groundwater with imported water and surface runoff captured in 10 local reservoirs. Recharge facilities include more than 300 acres of recharge ponds and over 90 miles of creeks. As described in the GMP for the Santa Clara Subbasin, SCVWD would continue to monitor groundwater use by SJWC and implement groundwater recharge activities to ensure that groundwater extraction from the Santa Clara Subbasin is performed in a sustainable manner.³³ As concluded in *Section IV.O, Utilities and Service Systems*, the city has adequate water supplies to support new development anticipated by the project. Therefore, potential increase in water demand under the proposed project would not substantially deplete groundwater supplies in the Santa Clara Subbasin.

³² San Jose Water Company, 2022. Water Source Map, Available at: <https://www.sjwater.com/water-source-map>, accessed July 11, 2022.

³³ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

Subsequent development under the project could result in an increase in impervious surfaces, which could reduce rainwater infiltration and lead to reduced groundwater recharge. Future development could also result in alterations to drainage patterns and changes in topography from grading and excavation, which could lead to reduced groundwater recharge in those areas. As discussed under the *Regulatory Setting* section above, the Municipal Code includes requirements that limit the amount of new impervious surface depending on the zoning district, which includes lower percentages of allowable impervious area for larger parcels; and the MRP and General Plan policies encourage the use of stormwater infiltration systems and require that post-development runoff peak flows match pre-development conditions, which is typically achieved through stormwater infiltration systems. Compliance with these requirements and policies would ensure that development under the project would result in less than significant impacts related to interference with groundwater recharge. Therefore, implementation of the General Plan would result in less than significant impacts related to depletion of groundwater supplies.

(3) Erosion, Siltation, and Polluted Runoff (Criterion 3)

Construction activities would involve excavation and grading, which could temporarily alter drainage patterns and expose soil to potential erosion. As described under Criterion 1 above, required compliance with the Construction General Permit; implementation of the policies, action programs, and implementation measures of the General Plan and Hillside Specific Plan; and implementation of the City's construction site inspection and control program would ensure that potential impacts related to erosion of exposed soil, sedimentation of receiving waters or the storm drain system, and polluted runoff during construction of the developments under the project would be less than significant.

During operation of the developments under the project, the development sites would be covered by structures, pavement, and landscaped areas/vegetation, with no ongoing soil exposure or disturbance that could result in erosion and siltation. Development under the project would increase impervious surfaces and could therefore increase stormwater runoff to creeks, which could result in erosion of creek banks and sedimentation. As described under Criterion 1 above, stormwater runoff from developments that would create 2,500 square feet or more of impervious surface would be managed in accordance with Provision C.3 of the MRP, which would minimize the amount of silt and pollutants in stormwater runoff and allow for infiltration of much of the stormwater runoff from impervious surfaces through LID stormwater control and treatment systems. Additionally, compliance with hydromodification management requirements of Provision C.3.g of the MRP and General Plan implementation measure IM OSC-10.b would ensure that post-development runoff peak flows match pre-development conditions, which would ensure that development under the project would not contribute to erosion and siltation in creeks due to increased runoff. Operation of developments under the project would therefore

have less-than-significant impacts related to erosion, siltation, and polluted runoff associated with changing drainage patterns.

(4) Flooding and Local Stormwater System Drainage Capacity (Criterion 3)

As described above under the *Setting* section, there are areas of the city that are designated by FEMA as 100-year Flood Hazard Zones and Regulatory Floodways. The FEMA designated 100-year Flood Hazard Zones and Regulatory Floodways in the city are shown in Figure IV.H-2, along with the parcels identified in the Housing Sites Inventory. As shown on Figure IV.H-2, there are multiple parcels identified in the Sites Inventory that are intersected by the 100-year Flood Hazard Zones including Housing Sites 5, 62, 67, 69, 74 through 78, and 87; and several parcels identified in the Housing Sites Inventory that are intersected by Regulatory Floodways, including Housing Sites 5 and 74 through 78. Development of parcels intersected by 100-year Flood Hazard Zones and Regulatory Floodways must be performed in accordance with the requirements in Article 16-66 of the City's Municipal Code, which would ensure that developments would not impede or redirect flood flows in a manner that would result in any increase in the water surface elevation in a Regulatory Floodway, or an increase in the base flood elevation in areas outside of Regulatory Floodways by more than one foot at any point within the city when the cumulative effect of the proposed development is combined with all other existing and anticipated development. In addition, compliance with Municipal Code requirements and implementation of the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan would also prevent potential impacts related to development impeding or redirecting flood flows by protecting creeks in their natural state and having SCVWD review proposed developments near creeks and flood hazard zones.

As described above under the *Setting* section, there are areas near Saratoga Creek within the planning area that could be susceptible to flooding from dam failure inundation. Areas of potentially significant dam failure inundation (greater than 1-foot of inundation) in the city are shown in Figure IV.H-3, along with the parcels identified in the Housing Sites Inventory. As shown on Figure IV.H-3, the areas of significant dam failure inundation intersect several parcels identified in the Housing Sites Inventory, including Housing Sites 69 and 74 through 78. While development of these parcels could impede or redirect flooding from dam failure inundation, the likelihood of dam failure at the Lake Ranch Reservoir is extremely low as the dam is regularly inspected by DSOD, and DSOD has not identified existing or potential dam safety deficiencies. Therefore, development under the project would have less-than-significant impacts related to impeding or redirecting flood flows from dam failure inundation.

Development under the project would increase the impervious surfaces in the city and could therefore increase stormwater discharges that could contribute to exceeding the capacity of existing or planned stormwater drainage systems and creeks, which could result in flooding on- or

off-site. If the stormwater control and treatment systems of future developments are not properly maintained, the systems could become clogged which could also result in localized flooding.

As described under Criterion 1 above, stormwater runoff from developments that would create 2,500 square feet or more of impervious surface would be managed in accordance with Provision C.3 of the MRP, which would allow for infiltration of much of the stormwater runoff from impervious surfaces through LID stormwater control and treatment systems. This could potentially result in a reduction in stormwater runoff from existing developed sites that do not have LID stormwater control and treatment systems and would be redeveloped under the project. Future developments that create or replace 1-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions would also be required to comply with hydromodification management requirements of Provision C.3.g of the MRP. Hydromodification management typically requires development to incorporate stormwater control systems that would ensure that post-development stormwater runoff conditions match the pre-development conditions through the use of features such as retention basins/cisterns and infiltration. Implementation of General Plan implementation measure IM OSC-10.b would ensure that post-development runoff peak flows match pre-development conditions for projects that are less than 1 acre. In accordance with Provision C.3.h of the MRP, the City implements an Operation and Maintenance Verification Program to ensure that stormwater control systems at projects that are regulated under the MRP are properly maintained,³⁴ which ensures that the stormwater control systems continue to drain properly and would not result in flooding due to lack of maintenance. Compliance with the MRP and implementation of General Plan policies would ensure that development under the project would result in less-than-significant impacts related to exceeding the capacity of existing or planned stormwater drainage systems and creeks or contributing to flooding on- or off-site.

(5) Release of Pollutants Due to Project Inundation (Criterion 4)

A tsunami is a sea wave caused by a submarine earthquake, landslide, or volcanic eruption. Tsunamis can cause catastrophic damage to shallow or exposed shorelines. The planning area is located over eight miles from the San Francisco Bay and over 18 miles from the Pacific Ocean, the only two waterways capable of generating a tsunami. The planning area is located at a sufficient elevation and distance from these waterbodies such that it would not be subject to inundation by a tsunami.

Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor, and go up and down or oscillate and do not progress forward like standard ocean waves. Seiches

³⁴ West Valley Clean Water Authority (WVCWA), 2021. Annual Report, FY 2020-21, City of Saratoga, September 30.

are also referred to as standing waves and are triggered by strong winds, changes in atmospheric pressure, earthquakes, tsunamis, or tidal influence. The height and frequency of seiches are determined by the strength of the triggering factor(s) and the size of the basin. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. There are no enclosed water bodies of significant size within the planning area; however, the Lake Ranch Reservoir is located upstream from the planning area and is traversed by the San Andreas Fault; therefore, a seismically induced seiche could occur at the Lake Ranch Reservoir. If a seiche occurred at the Lake Ranch Reservoir, it could cause overtopping of the reservoir's dams, which could result in inundation of downstream areas. Because the Lake Ranch Reservoir is located a few miles upstream from the planning area, potential inundation within the planning area caused by a seiche overtopping the Lake Ranch Reservoir's northern dam would be expected to remain within the banks of Saratoga Creek. Therefore, potential inundation due to seiches is not a concern for the planning area.

As described above under the *Setting* section, potential failure of the northern dam of the Lake Ranch Reservoir would result in inundation of areas near Saratoga Creek. The likelihood of dam failure at the Lake Ranch Reservoir is extremely low as the dam is regularly inspected by DSOD, and DSOD has not identified existing or potential dam safety deficiencies.

Several creeks and adjacent areas in the city have been identified as 100-year Flood Hazard Zones. Inundation of urban areas inherently results in the release of pollutants into flood waters. Inundation of commercial/industrial facilities that store significant quantities of hazardous materials creates a much higher risk of releasing pollutants in flood waters than inundation of residential properties, which typically do not store significant quantities of hazardous materials. There are no sites within the city that are used or designated for industrial purposes, which reduces the risk for the release of pollutants into flood waters as industrial activities typically include the storage of larger quantities of hazardous materials than commercial facilities. The project does not propose new zoning for commercial land use; therefore, development under the project would not create any areas of commercial land use within flood hazard zones that were not allowed under the previous General Plan.

The General Plan policies include having SCVWD review proposed developments near creeks and flood hazard zones. Such review would reduce the likelihood that land uses that could pose a significant threat to water quality due to storage of hazardous materials would be allowed near creeks and flood hazard zones. Compliance with Article 16-66 of the Municipal Code would ensure that any commercial development within 100-year Flood Hazard Zones would include appropriate construction materials and methods to resist flood damage, such as providing adequate drainage paths around structures to guide floodwaters around and away from proposed structures, placing lowest floor elevations at or above base flood elevations, and floodproofing of non-residential structures. As discussed in *Section IV.G, Hazards, Hazardous Materials, and*

Wildfires, compliance with hazardous materials storage requirements of Chapter 8 of the Saratoga Municipal Code and the County of Santa Clara Hazardous Materials Compliance Division (HMCD) Hazardous Materials Programs would also ensure that hazardous materials are stored in appropriate containers and in safe locations, which would further reduce potential impacts related to the release of hazardous materials in flood waters.

Compliance with the requirements of the Municipal Code and HMCD's Hazardous Materials Programs, and implementation of General Plan policies would ensure that development under the project would result in less-than-significant impacts related to the release of pollutants due to inundation.

(6) Conflict with Water Quality Control Plan or Sustainable Groundwater Management Plan (Criterion 5)

Development under the project would be required to comply with NPDES permit requirements to protect water quality (e.g., the Construction General Permit and MRP); the Municipal Code; and the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan as described under *Water Quality (Criterion 1)* above. Therefore, development under the project would protect water quality and would have less-than-significant impacts related to conflicts with the water quality objectives of the Basin Plan.

The GMP³⁵ for the Santa Clara and Llagas Subbasins has established the following sustainability goals related to groundwater supply reliability and protection:

- Manage groundwater to ensure sustainable supplies and avoid land subsidence.
- Aggressively protect groundwater from the threat of contamination.

These goals describe the overall objectives of SCVWD's groundwater management programs. The basin management strategies below are used to meet the sustainability goals.

- Manage groundwater in conjunction with surface water.
- Implement programs to protect and promote groundwater quality.
- Maintain and develop adequate groundwater models and monitoring networks.
- Work with regulatory and land use agencies to protect recharge areas, promote natural recharge, and prevent groundwater contamination.

The SCVWD owns property and easements along San Tomas Aquino, Saratoga, Wildcat, Calabazas, and Rodeo Creeks, which are used to protect habitat and recharge groundwater. Compliance with Municipal Code requirements and implementation of the policies, action

³⁵ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

programs, and implementation measures of the Hillside Specific Plan and General Plan would prevent project related impacts to groundwater recharge within creeks by protecting creeks in their natural state and having SCVWD review proposed developments near creeks. The Municipal Code also includes requirements that limit the amount of impervious surface that can be created depending on the zoning district, which includes lower percentages of allowable impervious area for larger parcels; and the MRP and General Plan policies encourage the use of stormwater infiltration systems and require that post-development runoff peak flows match pre-development conditions, which is typically achieved through stormwater infiltration systems. Compliance with these requirements and policies would ensure that development under the project would be consistent with the GMP's goals and strategies related to protecting groundwater recharge and managing groundwater in conjunction with surface water.

The GMP indicates that only approximately 0.1 feet of historical land subsidence is estimated to have occurred in the planning area, and groundwater levels are above historical low water levels in the majority of the Santa Clara Subbasin subsidence monitoring wells. If construction-related dewatering would be required during development under the project, it would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in land subsidence. The water supply source for the majority of the city is primarily imported surface water, except for the southwest portion of the city which is primarily local surface water.³⁶ Development under the project could lead to an increased demand for water, which could lead to an increase in groundwater pumping; however, SCVWD would continue to monitor groundwater use by SJWC and implement groundwater recharge activities to ensure that groundwater extraction from the Santa Clara Subbasin is performed in a sustainable manner.³⁷ As concluded in *Section IV.O, Utilities and Service Systems*, the city has adequate water supplies to support new development anticipated by the project. Therefore, potential increases in water demand due to development under the project would have less-than-significant impacts related to depleting groundwater supplies or causing subsidence in the Santa Clara Subbasin.

By protecting water quality during construction and operation of development under the project as described above and under *Water Quality (Criterion 1)*, development under the project would be consistent with the GMP's goals and strategies related to protecting groundwater quality. Therefore, compliance with the NPDES permit requirements to protect water quality (e.g., the Construction General Permit and MRP); the Municipal Code; and the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan would ensure that

³⁶ San Jose Water Copmany, 2022. Water Source Map, Available: <https://www.sjwater.com/water-source-map>, Accessed July 11, 2022.

³⁷ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

development under the project would have less-than-significant impacts related to conflicts with the Basin Plan and GMP.

c. Cumulative Hydrology and Water Quality Impacts

The geographic areas of concern for cumulative hydrology and water quality impacts are: 1) the creeks/drainages and surface waters that receive runoff from the planning area; 2) the storm drain systems in the planning area; 3) areas of flooding hazards in the planning area and that receive runoff/flood flows from the planning area; and 4) the Santa Clara Subbasin (for groundwater).

Stormwater discharged from past and existing land uses within the planning area and its vicinity have contained pollutants that have cumulatively contributed to the impairment of the water quality in Saratoga Creek, which is impaired by diazinon and trash; and San Tomas Aquino Creek, which is impaired by trash. Development under the project and cumulative projects have the potential to contribute to cumulative water quality impacts as they could result in the generation of additional trash and the use of pesticides such as diazinon. Stormwater regulations have become progressively more stringent since the passing of the federal Clean Water Act, and current regulations now require municipalities and new developments to manage and treat all significant sources of stormwater pollutants. Stormwater runoff from residential development under the project would be managed, treated, and monitored in accordance with the Construction General Permit; MRP; the Municipal Code; and the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan. Cumulative projects would also be required to comply with existing regulations that protect water quality, including the Construction General Permit and MRP. In accordance with Provision C.9 of the MRP, the City and surrounding jurisdictions must implement a pesticide toxicity control program that addresses their own and others' use of pesticides (such as diazinon) within their jurisdiction that pose a threat to water quality and that have the potential to enter the municipal conveyance system. In accordance with Provision C.10 of the MRP, the City and surrounding jurisdictions were required by the MRP to achieve 100 percent (i.e., complete trash capture) by July 1, 2022. As discussed under *Water Quality (Criterion 1)* above, the City had achieved a 96 percent reduction of trash in stormwater runoff in 2022 through the installation and maintenance of full-trash capture devices and other trash control measures.³⁸ Implementation of Mitigation Measure HYD-1 would ensure that the City would achieve 100 percent trash capture prior to development under the project, and that the City would implement trash capture activities that account for development under the project to ensure that the City maintains 100 percent trash capture during the operation of developments under the project. As a result, the contribution of development under the project

³⁸ West Valley Clean Water Authority (WVCWA), 2022. Annual Report, FY 2021-21, City of Saratoga, September 30.

to the degradation of the water quality from stormwater runoff would not be cumulatively considerable; therefore, the cumulative impact would be less than significant. As a result, construction and operation of residential developments under the project would not create a cumulatively considerable conflict with the water quality objectives of the Basin Plan; therefore, this cumulative impact would be less than significant.

Dewatering may be required during construction of developments under the project and cumulative projects, including the El Paseo and 1777 Saratoga Avenue Mixed-Use Project and the Westgate West Costco Warehouse Project, both of which are located in San Jose. In general, most construction period dewatering would typically not involve sufficient dewatering volumes or be at sufficient depths to substantially deplete local groundwater resources or result in subsidence. As a result, impacts on groundwater supplies from groundwater dewatering during construction of residential developments under the project would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Residential development under the project would alter drainage patterns and increase impervious surfaces in the planning area, which can contribute to cumulative impacts related to reduced groundwater recharge and increase stormwater runoff which can result in flooding/ exceeding the capacity of storm drain systems. Development of cumulative projects could also alter drainage patterns and increase impervious surfaces which could contribute to these cumulative impacts. The Municipal Code includes requirements that limit the amount of impervious surface that can be created in the city depending on the zoning district, which includes lower percentages of allowable impervious area for larger parcels; and the MRP and General Plan policies encourage the use of stormwater infiltration systems and require that post-development runoff peak flows match pre-development conditions, which is typically achieved through stormwater infiltration systems. Compliance with the Municipal Code and the MRP and implementation of General Plan policies and implementation measures (including Policy LU-6.2 and IM OSC-10.b, described under the *Regulatory Setting* above) would ensure that potential impacts from development under the project related to groundwater recharge and increased runoff contributing to flooding/exceeding the capacity of storm drain systems would not be cumulatively considerable; therefore, these cumulative impacts would be less than significant.

The Santa Clara Subbasin underlies most of the municipalities located in the northwest portion of Santa Clara County including the city and surrounding municipalities where cumulative projects are located. Residential development under the project and cumulative projects in the Santa Clara Subbasin could lead to an increased demand for water, which could lead to an increase in groundwater pumping. Land use agencies must review and approve water supply assessments for developments meeting certain growth requirements. The SCVWD coordinates with land use agencies to review certain EIRs, land use proposals (e.g., general plans) and water supply assessments to ensure alignment with SCVWD's policies, water supply goals, and planning

assumptions. SCVWD replenishes groundwater with imported water and surface runoff captured in 10 local reservoirs. Recharge facilities include more than 300 acres of recharge ponds and over 90 miles of creeks.³⁹ Compliance with Municipal Code requirements and implementation of the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan would prevent potential impacts of development under the project related to groundwater recharge within creeks by protecting creeks in their natural state and having SCVWD review proposed developments near creeks. As described in the GMP for the Santa Clara Subbasin, SCVWD would continue to monitor groundwater use in the Santa Clara Subbasin and implement groundwater recharge activities to ensure that groundwater extraction from the Santa Clara Subbasin is performed in a sustainable manner. Therefore, the increased demand for groundwater due to development under the project and cumulative projects in the Santa Clara Subbasin would not result in a cumulatively considerable impact to groundwater supplies in the Santa Clara Subbasin; therefore, the cumulative impact would be less than significant.

Residential development under the project and cumulative projects would not occur within 100-year Flood Hazard Zones and Regulatory Floodways and would not impede or redirect flood flows. In order to participate in the NFIP, communities must adopt a floodplain management ordinance that meets or exceeds the minimum NFIP requirements. As indicated in Title 44 Code of Federal Regulations Section 60.3, the minimum NFIP requirements include ensuring that developments would not impede or redirect flood flows in a manner that would result in any increase in the water surface elevation in a Regulatory Floodway, or an increase in the base flood elevation in areas outside of Regulatory Floodways by more than one foot at any point within the community when the cumulative effect of the proposed development is combined with all other existing and anticipated development. The City and surrounding communities where cumulative projects are located are participants in the NFIP and have adopted floodplain management ordinances that meet or exceed the minimum NFIP requirements. Therefore, development under the project and cumulative projects must account for cumulative flooding conditions and avoid adverse effects related to impeding or redirecting flood flows. Compliance with the City's Municipal Code and implementation of the policies, action programs, and implementation measures of the Hillside Specific Plan and General Plan would ensure that adverse effects related to impeding or redirecting storm flood flows from development under the project would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

³⁹ Santa Clara Valley Water District (SCVWD), 2021. 2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins, November.

I. LAND USE, AGRICULTURE, AND FORESTRY RESOURCES

This section describes the existing land use setting in Saratoga, State, and local regulations pertinent to land use, the project's consistency with relevant land use policies, and the project's potentially significant land use impacts. The potential for the project to convert farmland, result in the loss of forest land, or conflict with existing zoning related to agricultural use, forest land, or timberland is also evaluated.

General Plan policies associated with other specific environmental topics (e.g., aesthetics, air quality, biological resources) are discussed in the relevant sections of this EIR.

1. Setting

The project planning area consists of all properties located within the incorporated boundary of the City of Saratoga (approximately 12.78 square miles) and lands within the city's Sphere of Influence (SOI) (approximately 2.83 square miles). The planning area boundaries are shown in Figure III-2, located within *Chapter III, Project Description*, of this EIR. The planning area has a predominantly residential character, long-established neighborhoods, scenic hillsides, open space areas, and established commercial and office areas.

a. Land Use

The predominant land use in Saratoga is residential, most of which is lower density, single-family homes. Medium density residential uses, comprised primarily of townhome and condominium units, are found near the Saratoga Avenue/State Route 85 intersection, Saratoga-Sunnyvale Road south of Prospect Road, and adjacent to the Saratoga Village.

The commercial and shopping areas are primarily resident-serving and include Saratoga Village located along Big Basin Way. The Village includes a range of restaurants, specialty retail, professional offices, and personal services. Other commercial areas include:

- Saratoga-Sunnyvale Road between Prospect Road and the Union Pacific railroad tracks;
- The east side of Saratoga-Sunnyvale Road south of Cox Avenue;
- The south side of Cox Avenue at Paseo Presada near the intersection of Saratoga Avenue; and
- The south side of Prospect Road east of Lawrence Expressway.

Small office complexes, including medical and dental offices, are located at:

- Cox Avenue to the east and west of Saratoga Avenue;
- Saratoga-Sunnyvale Road at Blauer Drive;

- Saratoga Avenue at the intersection of Saratoga-Sunnyvale Road; and
- Portions of the Saratoga Village along Big Basin Way.

There are no parcels within Saratoga used or designated for industrial purposes.

Other major land uses in the city include community facilities sites such as the Saratoga Civic Center, located on the west side of Fruitvale Avenue, and West Valley College, located at the northeast corner of the Fruitvale Avenue/Allendale Avenue intersection.

Saratoga includes land devoted to parks, trails, and natural areas for recreational use. These lands are located both within the city limits and in the adjacent unincorporated hillside areas of the SOI and include City-owned parks and open spaces, as well as public lands that are owned and operated by Santa Clara County Parks and the Midpeninsula Regional Open Space District.

The total acreage of the General Plan land use categories within the planning area is shown in Table IV.I-1. The most common existing land use category is single-family residential, which comprises approximately 67 percent¹ of the existing planning area. The existing General Plan Land Use map is shown in Figure IV.I-1.

b. Agricultural and Forestry Resources

(1) Important Farmlands

The California Department of Conservation, as part of its Farmland Mapping and Monitoring Program (FMMP), prepares Important Farmland Maps indicating the potential value of land for agricultural production.

As shown in Figure IV.I-2, the majority of the land within the planning area is classified as Urban and Built-Up. The remainder of land within the planning area is classified as Unique Farmland, Farmland of Local Importance, Grazing Land, and Other Land. Table IV.I-2 provides a summary of the acreage associated with each type of farmland classification within the planning area. Please see *Farmland Mapping and Monitoring Program* below for additional details about the program and farmland designations.

¹ Includes the following General Plan Land Use designations: Residential Hillside Conservation (RHC); Residential Very Low Density (RVLD); Residential Low Density (RLD); and Medium Density Residential (M-15), (M-12.5), and (M-10).

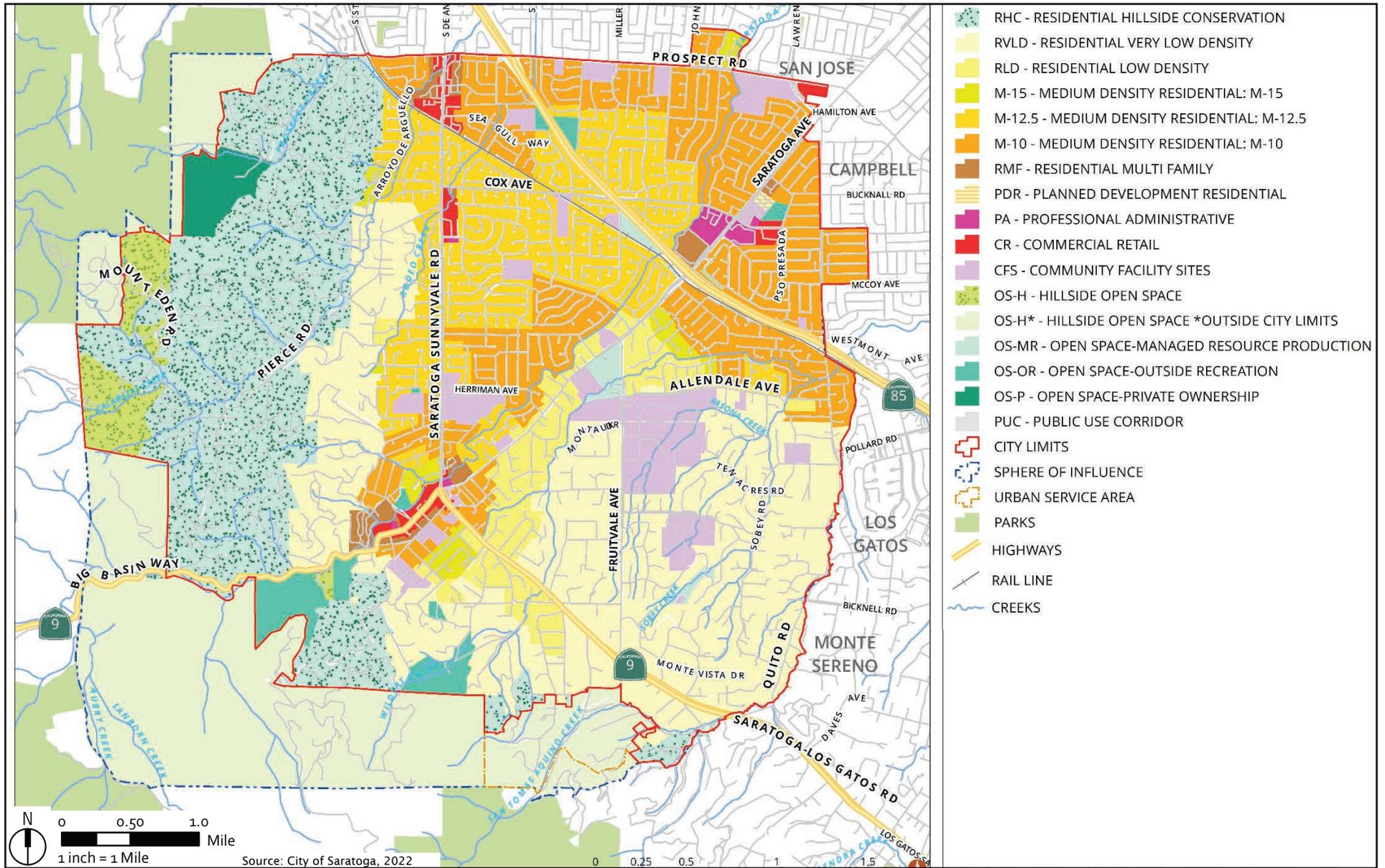


Figure IV.I-1
 General Plan Land Use Map
 Saratoga Housing and Safety Elements, and 2040 General Plan Updates EIR

TABLE IV.I-1 SARATOGA GENERAL PLAN LAND USE DESIGNATIONS

Land Use Category	Acres	Percent of Total
Residential Hillside Conservation (RHC)	1,717	19%
Residential Very Low Density (RVLD)	1,920	21%
Residential Low Density (RLD)	343	4%
Medium Density Residential (M-15)	97	1%
Medium Density Residential (M-12.5)	882	10%
Medium Density Residential (M-10)	1,098	12%
Residential Multi-Family (RMF)	92	1%
Planned Development Residential (PDR)	6	<1%
Professional Administrative (PA)	35	<1%
Commercial Retail (CR)	80	1%
Community Facility Site (CFS)	420	5%
Hillside Open Space (OS-H)	195	2%
Hillside Open Space Outside City Limits (OS-H)	1,784	20%
Open Space – Managed Resource Production (OS-MR)	55	1%
Open Space – Outdoor Recreation (OS-OR)	161	2%
Open Space – Private Ownership (OS-P)	99	1%
Public Use Corridor (PUC)	0.5	<1%
Totals	8,985	100%

Notes: The planning area contains approximately 1,754 acres of land that has not been assigned a land use category. These include roadways, creeks, and trails.

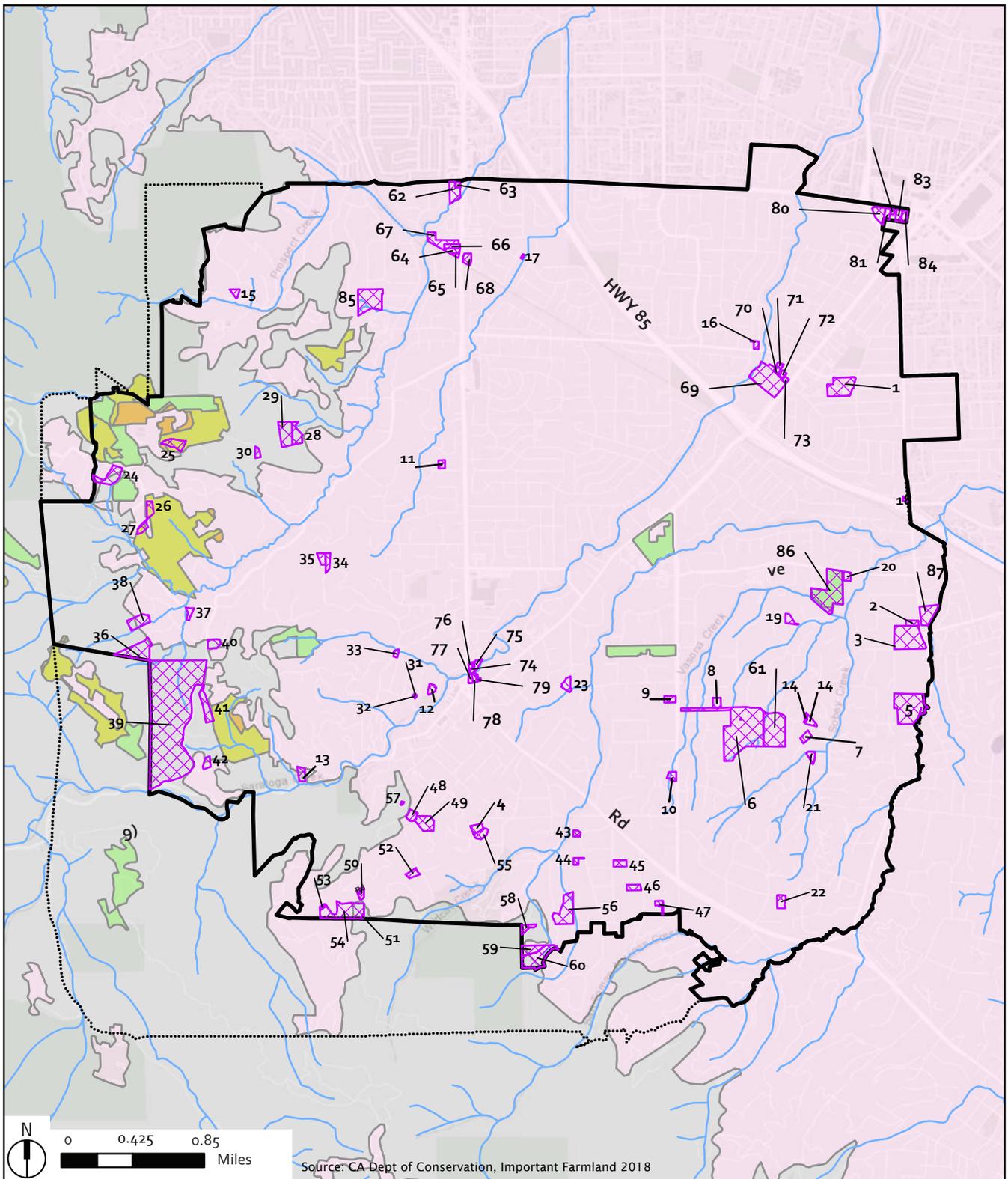
Source: GIS and City of Saratoga Records, 2019.

TABLE IV.I-2 CITY OF SARATOGA FARMLAND CLASSIFICATIONS

	Municipal Boundaries (Acres)	SOI (Acres)	Total (Acres)
Unique Farmland	83.92	32.85	116.77
Farmland of Local Importance	148.10	37.54	185.64
Grazing Land	20.43	0.01	20.44
Urban and Built-Up Land	7,000.51	355.82	7,356.33
Other Land	926.42	1,387.81	2,314.23
Total Area Inventoried	8,179.42	1,814.03	9,993.41

Notes: The planning area contains land that has not been assigned a FMMP Farmland Classification. These include roadways, creeks, and trails.

Source: Santa Clara County Important Farmland, California Department of Conservation, 2018. Available at: <https://www.conservation.ca.gov/dlrp/fmmp/Pages/SantaClara.aspx>, accessed August 1, 2022.



- | | |
|---|---|
| Farmland Classification | |
| Unique Farmland (U) | Saratoga City Limits |
| Grazing Land (G) | Saratoga Sphere of Influence |
| Urban and Built-Up (D) | Hydrology |
| Other Land (X) | Housing Sites |
| Farmland of Local Importance | |

Figure IV.I-2
Important Farmland

(1) Williamson Act Contract Lands²

Currently, agricultural lands in Saratoga are primarily comprised of wine grapes in the hillside areas, and a few remaining orchards. In Saratoga there are a number of agriculture sites of varying sizes that are protected and restricted to agricultural or open space use, as defined in specific Williamson Act contracts. The planning area currently has approximately 307 acres of lands under Williamson Act contracts, as shown in Figure IV.I-3. There are currently 28 parcels within the planning area under a Williamson Act contract. The following parcels, identified as potential Housing Inventory Sites within the Housing Element Update, are currently under a Williamson Act contract.

Pipeline Projects

- *Marshall Lane Subdivision*. This site includes the following APNs: 39702110 and 39702111. The project was approved in October 2021 and includes nine units. In 2018, the landowners submitted a non-renewal notice for their Williamson Act Contract. On October 6, 2021, the City of Saratoga City Council passed and adopted a resolution for the Cancellation of the Williamson Act Contract (Resolution No: 21-070). Once all applicable fees have been paid, the Williamson Act Contract cancellation will be in effect. It should be noted that, due to an ongoing legal dispute, applicable fees will not be paid until the property is sold.

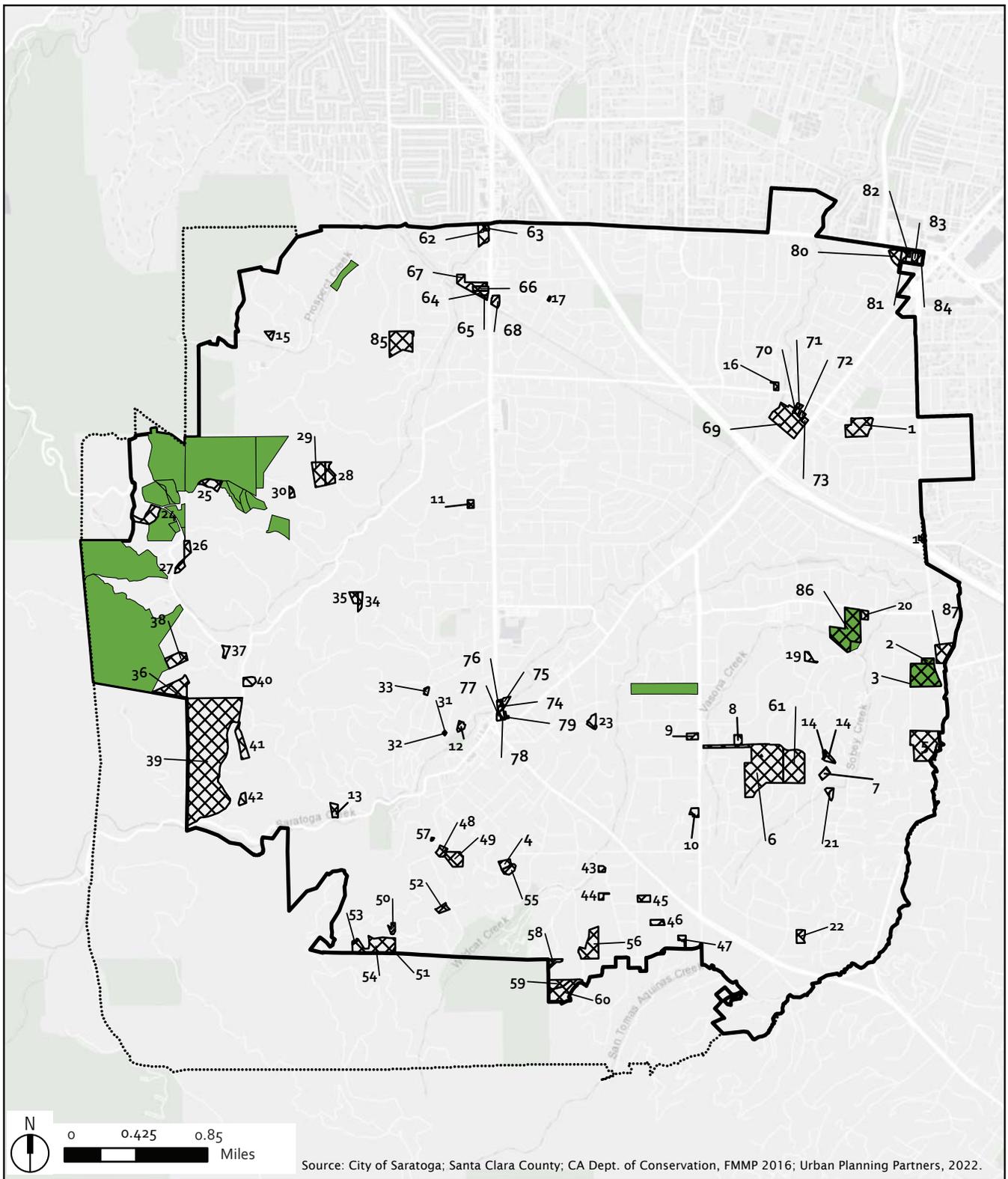
Non-Vacant/Underutilized Project Sites

- *Allendale/Chester Housing Site*. This 12.13-acre site includes the following APN: 39701071. Based on the proposed rezoning of the site, it is anticipated the Allendale/Chester Housing Site is suitable to accommodate the development of up to 24 residential units. On September 24, 2018, the landowners submitted a non-renewal notice for their Williamson Act Contract. Accordingly, the Williamson Act Contract on the property will end January 1, 2028.

(2) Forest Resources

Existing land use in Saratoga is predominantly classified as urban or built-up land. A review of GIS data from the U.S. Department of Agriculture and the U.S. Forest Service indicates that forest land is primarily located west of Saratoga-Sunnyvale Road (see Figure IV.I-4). As shown in Table IV.I-3, the planning area contains approximately 643 acres of productive forest land (14 acres of which are in the City's boundaries) and 2,125 acres of non-productive forest land

² Land Conservation (Williamson) Act Program Overview, California Department of Conservation. Available at: https://www.conservation.ca.gov/dlrp/wa/Pages/wa_overview.aspx, accessed July 18, 2022.



- Saratoga City Limits
- Saratoga Sphere of Influence
- ⊠ Housing Sites
- Williamson Act Contract Lands

Figure IV.I-3
Williamson Act Contract Lands
Saratoga Housing and Safety Elements, and 2040 General Plan Updates EIR

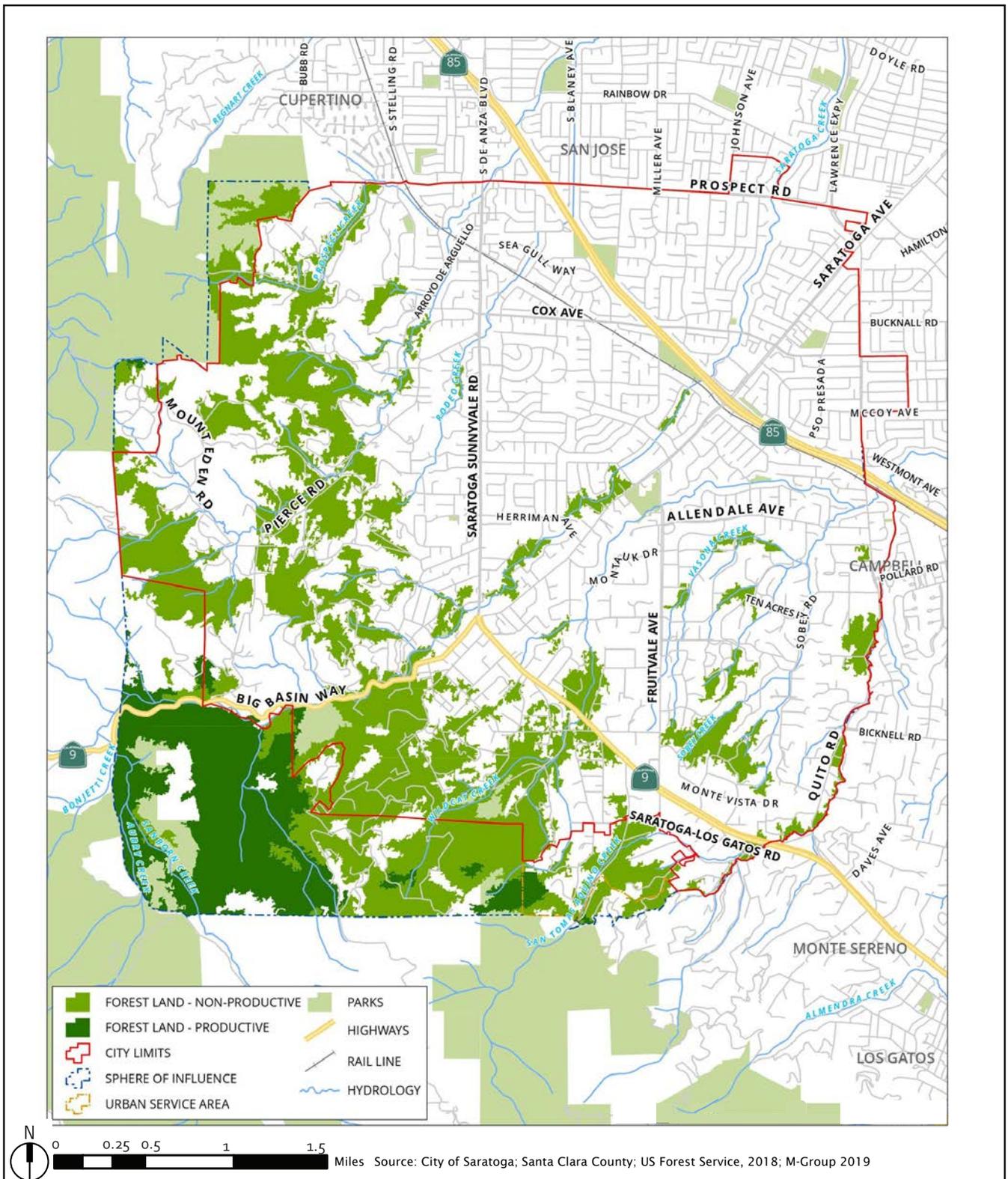


Figure IV.I-4
Forest Land

TABLE IV.I-3 FOREST LAND CALCULATIONS

Land Cover Classification	City (Acres)	SOI (Acres)	Total (Acres)
Forest Land – Non-Productive	1,550	575	2,125
Forest Land – Productive	14	629	643
Urban or Built-Up Land	5,802	106	5,908
Agricultural Land	240	136	376
Rangeland	498	353	851
Wetlands	73	17	90
Total	8,177	1,816	9,993

Notes: The planning area contains approximately 1,754 acres of land that has not been assigned a Forest Land Cover Classification. These include roadways, creeks, and trails.

Source: U.S. Forest Service, 2018.

concentrated in the southwest region.³ Definitions of forest land, timberland, and timberland production zones are provided below.

“Forest land” as defined in California Public Resources Code Section 12220(g), is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for the management of one or more forest resources. Forest resources including timber, fish and wildlife, and recreational facilities. Forest resources can also include land that is being managed for aesthetics, biodiversity, the integrity of water quality, and other public benefits.

“Timberland” as defined by Public Resources Code Section 4526 and California Government Code Section 51104(f), includes privately owned land, or land acquired for state forest purposes, which is available for, and capable of, growing trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Further, “timberland” is defined as land which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet per acre.

“Timberland Production Zone” as defined by Government Code Section 51104(g), is an area which has been zoned pursuant to Section 51112 or 51113, and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses.

³ Productive forest land is classified as “forest land that is producing or capable of producing in excess of 20 cubic feet per acre per year of wood at culmination of mean annual increment.” Non-productive forest land is classified as “forest land that is not capable of producing in excess of 20 cubic feet per acre per year of wood at culmination of mean annual increment.”

“Compatible use” as defined by Section 51104(h), is any use which does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber (e.g., management for watershed, grazing, or residence necessary for the management of land zoned as timberland production).

The planning area does not contain any “Timberland” or “Timberland Production Zones.”

2. Regulatory Setting

The following section describes relevant regulatory documents and programs.

a. State Law

(1) General Plan Law

Government Code Sections 65300-65404 set forth the requirements for each city and county in California to adopt a comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency’s judgment bears relation to its planning. Government Code Section 65302 identifies the mandatory general plan elements and the information they must provide. Required general plan elements include the following: land use element; circulation element; housing element; conservation element; open-space element; noise element; and safety element.

(2) State Housing Element Law

California Government Code (Sections 65580-65589.11) requires cities and counties to update the Housing Element of their General Plans every 5 or 8 years (depending on location/jurisdiction) to ensure that they meet their responsibilities in helping the State of California meet its housing goals and in addressing regional housing needs.

California’s housing element law, codified at Government Code Sections 65580-65589.11, establishes the Legislature’s intention to ensure the availability of suitable, decent housing for every Californian, including farmworkers, and ensure the provision of housing that is affordable to low- and moderate-income households. State planning law requires cities and counties to prepare and implement general plan housing elements that, along with federal and State programs, will move toward attainment of those housing goals, which were established in 1969.

Housing elements are required to provide an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing. The Housing Element must identify adequate sites for housing, including rental housing, factory-built housing, mobile homes, and emergency shelters, and must include adequate provision for the

existing and projected needs of all economic segments of the community. Projected housing needs are to be based on an analysis of population and employment trends and projections for the jurisdiction, and these needs must include the locale's share of the regional housing need as established by the California Department of Housing and Community Development (HCD) (discussed further below).

(3) Streamlined Ministerial Approval Process

Government Code Section 65913.4 provides for a streamlined, ministerial approval⁴ process for a multi-family residential development of two or more units on a site that is zoned for residential use or residential mixed-use development, or that has a general plan designation that allows residential use or a mix of residential and non-residential uses, and at least two-thirds of the square footage of the development is designated for residential use. Any additional square footage granted pursuant to the Density Bonus Law (DBL) (see below) must be included in the square footage calculation. This streamlined process does not apply in a jurisdiction that has met its Regional Housing Needs Allocation (RHNA) (see RHNA discussion in the project description).

To qualify for a streamlined ministerial approval, the project site must be in an urbanized area, and at least 75 percent of the site perimeter must adjoin parcels that are developed with urban uses (separation by a road or highway is allowed). The project must be consistent with objective zoning standards, subdivision standards, and design review standards in effect at the time that the development is submitted to the local government. A certain percentage of the proposed housing units, depending on conditions in the jurisdiction where the project will be developed, must be affordable to low- and moderate-income households for a period of 55 years for rental units and 45 years for purchased units.

Pursuant to Senate Bill 9 (SB 9) streamlined ministerial review is also provided for urban lot split and/or two-unit developments on single-family residentially zoned parcels. The City's ministerial review and processing of applications facilitated through SB 9, including objective design standards related to parking, building height, and setbacks, is included within Article 15-57 of the City's zoning regulations.

(4) Density Bonus Law

The DBL (California Government Code Sections 65915–65918) provides residential developers incentives to develop affordable and senior housing by allowing them to substantially increase the density of their projects when they meet stipulated affordability thresholds. The DBL can

⁴ Ministerial approvals are those that don't involve the discretion of the local agency. If objective standards and conditions are met, they must automatically be approved.

increase the allowable density of a project by up to 50 percent, depending on the amount of affordable housing provided. It allows an 80-percent increase in density for projects which are completely affordable and removes all maximum controls on density for completely affordable projects within one-half mile of a major transit stop or within a very low vehicle travel area beginning January 1, 2023. A local jurisdiction must allow the density bonus and other benefits provided by the DBL if the project meets the requirements of the law.

To qualify for a density bonus or other concessions (addressed below), a proposed housing development must include one of the following:

- At least 5 percent of the housing units are restricted to very low-income households.
- At least 10 percent of the housing units are restricted to low-income households.
- At least 10 percent of the housing units are sold to persons and families of moderate-income, provided that all units in the development are offered for purchase.
- 100 percent of the housing units (other than manager's units) are restricted to lower- and moderate-income households (with a maximum of 20 percent moderate).
- At least 10 percent of the housing units are for transitional foster youth, disabled veterans, or homeless persons, with rents restricted at the very low-income level.
- At least 20 percent of the housing units are for low-income college, graduate, or professional students in housing dedicated for full-time students at accredited schools of higher education.
- The project donates at least 1 acre of land to the city or county for very low-income units, and the land has the appropriate general plan designation, zoning, permits and approvals, and access to public facilities needed for such housing.
- The project is a senior citizen housing development (no affordable units required).
- The project is a mobile home park age-restricted to senior citizens (no affordable units required).

Rental units must include a recorded affordability restriction for at least 55 years. For-purchase units must include recorded restrictions requiring homes that are resold to be sold to households of very low-, low-, or moderate-income for a period of at least 45 years.

The amount of density bonus is determined on a sliding scale that depends on the percentage of affordable units at each income level included in the proposed development, with the bonus ranging from 5 percent to 50 percent. As previously noted, projects that are 100-percent affordable receive an 80-percent density bonus or no restrictions on density for projects in certain areas.

The DBL provides additional incentives for developers. The local jurisdiction is required to provide at least one incentive or concession to each project that qualifies for a density bonus. The number of incentives depends on the number of very low-, low-, and moderate-income units included in the project, with up to four concessions allowed. A concession or incentive is defined as:

- A reduction in site development standards or a modification of zoning code or architectural design requirements, such as a reduction in setback, parking ratio, or minimum square footage requirements; or
- Approval of mixed-use zoning if commercial, office, industrial, or other land uses will reduce the cost of the housing development and if the commercial, office, industrial, or other land uses are compatible with the housing project and the existing or planned development in the area where the proposed housing project will be located; or
- Other regulatory incentives or concessions which result in identifiable and actual cost reductions.

The local jurisdiction is required to grant the concession(s) requested by the applicant unless one of the following conditions applies:

- A. The concession or incentive does not result in identifiable and actual cost reductions;
- B. The concession or incentive would have a specific, adverse impact on public health and safety or on any property that is listed in the California Register of Historical Resources and for which there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact without rendering the development unaffordable to low- and moderate-income households; or
- C. The concession or incentive would be contrary to State or federal law.

Another significant developer benefit of the DBL is a potential waiver from or reduction in any local development standard that would physically prevent the project from being built at the permitted density and with the granted concessions or incentives. A waiver or reduction is not required if conditions (B) or (C), set forth in the preceding paragraph, apply. A waiver or reduction in a development standard does not count as a concession or incentive, and there is no limit on the number of development standard waivers that a developer can request.

(5) Farmland Mapping and Monitoring Program

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) monitors the conversion of the State's farmland to and from agricultural use. County-level data is collected, and maps are prepared that identify eight classifications and uses. The program also produces a biennial report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of State agricultural land and updates

the Important Farmland Series Maps every two years. Agricultural land is rated according to several variables, including soil quality and irrigation status, with Prime Farmland being considered the most optimal for farming practices. Other FMMP designations include Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, Grazing Land, and Water.

The Santa Clara County Important Farmland Map identifies five agriculture-related categories and three non-agricultural categories: Prime Farmland; Farmland of Statewide Importance; Unique Farmland; Farmland of Local Importance; Grazing Land, Urban and Built-Up Land; Other Land; and Water Area. See Figure IV.I-2 for the FMMP categories within the planning area. The following provides definitions⁵ for FMMP designations within the Saratoga planning area:

Farmland of Local Importance – Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. In Santa Clara County, Farmlands of Local Importance include the following; small orchards and vineyards primarily in the foothill areas; land cultivated as dry cropland for grains and hay; and undeveloped lands that do not currently qualify for the Prime, Statewide, or Unique designations, but have been mapped as Prime, Statewide, Unique, or Local Importance designations by FMMP in the past.

Unique Farmland – Farmland of lesser quality soils used for the production of the State's leading agricultural crops is classified as Unique Farmland. This land is usually irrigated but may include non-irrigated orchards or vineyards. Land must have been cropped at some time during the four years prior to the mapping date.

Grazing Land – Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattleman's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Urban and Built-Up Land – Land occupied by structures with a building density of at least one unit per every 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

⁵ California Department of Conservation, Important Farmland Categories. Available at: <https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx>, accessed July 10, 2022.

Other Land – Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40-acres is mapped under this designation.

(6) Williamson Act⁶

The California Land Conservation Act, also known as the Williamson Act (California Administrative Code Section 51200 et seq.), was adopted in 1965 to encourage the preservation of the state's agricultural lands and to prevent their premature conversion to urban uses. To preserve these uses, the act established an agricultural preserve contract procedure by which any county or city within the state taxes landowners at a lower rate, using a scale based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. In return, the owners guarantee that these properties remain under agricultural production. The minimum term for contracts is 10 years. However, since the contract term automatically renews on each anniversary date of the contract (e.g., 10 years), the actual term is essentially indefinite. The contract runs with the land and is binding to all succeeding landowners.

Contracts may be terminated at the option of the landowner or local government by initiating the process of term non-renewal.

Under the nonrenewal process, a landowner or local government initiates a Notice of Nonrenewal and begins a nine-year nonrenewal period, leading to the eventual expiration of the Williamson Act Contract (assuming an initial 10-year contract period.) During the nonrenewal process, the annual tax assessment continually increases each year until it is equivalent to current tax rates at the end of the nonrenewal period. Once a property is no longer under a Williamson Act Contract, the land may be developed in accordance with the standards of the General Plan land use designation and zoning district in which the land is located.

A landowner may also submit a request to a local government requesting the cancellation of a Williamson Act Contract prior to the end of a nonrenewal period. Contract cancellation is an option offered under limited circumstances and conditions set forth in Government Code Section 51280. Such Code Section requires certain findings as defined by Government Code 51282(a) to be made by local governments; if such findings are determined to be met, the landowner is required to pay a cancellation fee of 12.5 percent of the unrestricted fair market value of the property.

⁶ California Department of Conservation, Land Conservation (Williamson) Act Program Overview. Available at: https://www.conservation.ca.gov/dlrp/wa/Pages/wa_overview.aspx, accessed July 20, 2022.

b. Regional

(1) Plan Bay Area 2050

Plan Bay Area 2050, adopted jointly on October 21, 2021, by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), is the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the San Francisco Bay Area, mandated by SB 375, the Sustainable Communities and Climate Protection Act of 2008. SB 375 required each of the State's 18 Metropolitan Planning Organizations (MPOs) to prepare an RTP/SCS that will enable the affected region to achieve the greenhouse gas (GHG) reduction goals established by Assembly Bill 32, passed in 2006, and ensure the provision of adequate housing for growth projected during the planning period.

Plan Bay Area 2050's core strategy is "focused growth" in existing communities along the existing transportation network. This strategy is intended to leverage existing infrastructure, compliment and integrate with existing community characteristics, and minimize impacts to less developed areas. The focused growth strategy targets four types of Growth Geographies:

- **Priority Development Areas (PDAs)** that are identified by local governments for housing and job growth. PDAs are generally near existing job centers or in proximity to frequent public transit options.
- **Priority Production Areas (PPAs)**, also identified by local governments, these areas are targeted for job growth in middle-wage industries, such as manufacturing or logistics. PPAs must be zoned for industrial use or have existing land use dominated by industrial uses.
- **Transit-Rich Areas (TRAs)** are areas located in proximity to rail, ferry, or frequent bus service that haven't been identified as PDAs. TRAs must have at least 50 percent of the land area within one-half mile of an existing or planned rail station or ferry terminal that includes bus and/or rail service. Alternatively, they can be located within one-half mile of a bus stop with peak service frequency of 15 minutes or less.
- **High-Resource Areas (HRAs)** are identified by the State HCD as areas that meet a minimum transit service threshold and have good access to schools, jobs, and open space. They must meet a baseline transit service threshold of bus service with peak headways of 30 minutes or better.

c. Local

(1) Santa Clara County Local Agency Formation Commission

The Local Agency Formation Commission (LAFCO) is a state-mandated local agency established to oversee the boundaries of cities and special districts and charged with the responsibilities of encouraging orderly development, discouraging urban sprawl, and preserving agricultural and open space lands. LAFCO of Santa Clara County is a seven-member body with two County Members, one Public Member, two Special Districts Members, one City of San Jose Member, and one other Cities Member. LAFCOs consider agricultural land and open space preservation and decisions related to expansion of urban development.

(2) Saratoga General Plan

The City of Saratoga's General Plan helps guide the growth and land development of the community, while preserving open space areas and enhancing the quality of life for residents. Saratoga's current comprehensive General Plan was prepared in 1983. Since 1983, the City has updated the General Plan Elements one or two at a time based on State requirements. The existing General Plan includes the following elements:

- Land Use
- Circulation and Scenic Highway
- Open Space and Conservation
- Safety
- Noise
- Housing

The General Plan land use map implements General Plan policy by mapping allowed land uses throughout the city. As shown in Figure IV.I-1, it identifies 20 different residential, commercial, and other land use categories, assigning one land use designation to each parcel in the city. Proposed new development must be consistent with the land uses and density allowed in the land use designation assigned to the proposed development site. The City's zoning code and ordinances regulating land use must also be consistent with the General Plan.

Each of the General Plan elements listed above includes goals, objectives, and policies intended to achieve the purposes of the elements, as set forth in Government Code 65300 *et seq.* The impacts discussion in this section addresses potential conflicts with General Plan policies that avoid or mitigate an environmental effect, which is the applicable threshold of significance for planning impacts pursuant to CEQA. However, for informational purposes, Table IV.I-4 presents a list of General Plan policies relevant to the project, whether the project would conflict with the policies. The table includes a brief discussion of the project's consistency with each policy.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
LAND USE		
Policy LU-1.2	Continue to review all residential development proposals to ensure consistency with Land Use Element goals and policies.	Consistent: As site specific housing development projects are proposed, each proposal would be reviewed to ensure consistency with Land Use Element goals and policies. In some circumstances, State law will allow the City to consider whether a project is consistent with only the City goals and policies that include objective standards. This project includes new zoning provisions to include such standards.
Policy LU-1.3	Ensure that existing undeveloped sites zoned single-family detached residential remain so designated.	Consistent: One Housing Inventory Site (Quito/Pollard Site) is vacant and designated Residential Single-Family (R-1-40,000) on the Zoning Map. As part of this Update, the City of Saratoga would rezone the Quito/Pollard Housing Site to one of the City’s other existing single-family residential zoning districts with a smaller minimum lot size, (R-1-10,000) to allow for greater development potential on the site. The General Plan land use designation would be amended from RVL D Residential Very Low Density to M-10 Medium Density Residential.
Goal LU 5	Relate development proposals to existing and planned street capacities to avoid excessive noise, traffic, and other public safety hazards so as to protect neighborhoods. If it is determined that existing streets need to be improved to accommodate a project, such improvements shall be in place or bonded for prior to issuance of building permits.	Consistent: Under the requirements of the proposed General Plan, proposed development projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances, State law will allow for ministerial approval of a project, and CEQA review would not be required; As described in <i>Section IV.N, Transportation</i> , future projects would be subject to existing regulations that are aimed at reducing hazardous conditions with respect to circulation. Additionally, future development resulting from the project would be concentrated on sites that are already developed where impacts related to incompatible traffic-related land uses would not likely occur.
Policy LU- 5.2	Development proposals shall be evaluated against City standards and guidelines to assure that the related traffic, noise, light, appearance,	Consistent: Most new housing projects would be required to go through the design review process. Additionally, proposed development projects would need to comply with Policy LU 13.1,

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
	and intensity of the proposed use have limited adverse impact on the area and can be fully mitigated.	requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances, State law will allow the City to consider whether a project is consistent with only the City goals and policies that include objective standards. This project includes new zoning provisions to include such standards.
Policy LU-5.3	The capacity of existing streets shall be recognized prior to tentative building site or subdivision approval of any project. New development shall be designed to minimize disruption to the area caused by an increase in through or heavy traffic. ⁷	Consistent: Proposed development projects would be required to prepare traffic impact reports, consistent with City policy. Additionally, proposed development projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances, State law will allow the City to consider whether a project is consistent with only the City goals and policies that include objective standards. This project includes new zoning provisions to include such standards.
Policy LU-6.2	Development proposals shall incorporate stormwater quality features, including but not limited to grassy bio-swales, to protect surface and subsurface water quality.	Consistent: As site-specific projects are proposed, development projects would be required to incorporate applicable stormwater protection and retention features into project site plans.
Policy LU-6.3	Continue to implement the City’s Construction Materials Recycling Program to reduce the quantity of construction debris in local landfills.	Consistent: As site-specific projects are proposed, development projects would be required to adhere to all applicable measures related to construction materials recycling.
Policy LU- 6.5	Encourage the use of renewable resources and energy conservation.	Consistent: The City’s Climate Action Plan and Building Code require new residential development to comply with Title 24 of the California Code of Regulations which mandates the use of energy efficient appliances and insulation. Furthermore, the Housing Element Update includes Policy 1.3, to incentivize efficient buildings and conservation. The Housing Element Update also includes Program 1-3.1: Encourage Efficient Use of Energy Resources in Residential

⁷ Per the 2040 General Plan Update, existing Policy LU-5.3 is now in the Circulation Element.

TABLE IV-I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Goal LU-7	Protect existing agricultural resources. and encourage expansion of this use.	Development and Program 1-3.2: Encourage Green Building Practices in Home Construction. Potentially Inconsistent: The Housing Element Update identifies two sites for development that have previously included agricultural uses. However, it should be noted that active agricultural production on the site has ceased and the site is currently fallow.
Policy LU-7.1	Encourage renewal and discourage cancellation of Williamson Act contracts to preserve agricultural lands.	Potentially Inconsistent: Two of the potential housing sites have Williamson Act contracts that are in the non-renewal process (Allendale/Chester site) or are in the process of being cancelled (Marshall Lane Subdivision site). The Allendale/Chester site owners initiated the non-renewal process in 2018, prior to drafting of the Housing Element Update. Cancellation of the Williamson Act on the Marshall Lane Subdivision site will be completed when all applicable cancellation fees have been paid.
Policy LU-7.2	Encourage agricultural and open space landowners to voluntarily protect their land.	Potentially Inconsistent: The Housing Element Update identifies sites for development that were used for agricultural purposes in the past. However, there is no active agricultural production activities currently at these sites. These sites are in locations within urban/suburban uses surrounding the site.
Policy LU-7.3	Encourage agricultural use on suitable land with protection for nearby residences as appropriate.	Potentially Inconsistent: The Housing Element Update identifies sites for development that were used for agricultural purposes in the past. However, there is no active agricultural production at the sites currently. These sites are in locations within urban/suburban uses surrounding the site.
Policy LU-8.1	Development proposals shall minimize impacts to ridgelines, significant natural hillside features, including but not limited to steep topography, major stands of vegetation, especially native vegetation and oak trees, and watercourses.	Consistent: The project would require most new housing units to go through the design review process. Lands within the hillside areas of the city are typically constrained in terms of development intensity due to the steep slope of several hillside lots, unstable soils, and other environmental and safety concerns related to the city’s unique topography. In some circumstances State law will allow the City to consider whether a project is consistent with only the City goals and

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy LU-9.1	Limit Expansion of Urban Development in the hillside areas.	<p>policies that include objective standards. This project includes new zoning provisions to include such standards.</p> <p>Consistent: Lands within the hillside areas of the city are typically constrained in terms of development intensity due to the steep slope of several hillside lots, unstable soils, and other environmental and safety concerns related to the city’s unique topography. The project does not change any land use designations in the hillside areas.</p>
Policy LU-9.2	Limit the amount of grading within hillside areas to the minimum amount needed for dwellings and access.	<p>Consistent: Most new housing units would be required to go through the design review process. Lands within the hillside areas of the city are typically constrained in terms of development intensity due to the steep slope of several hillside lots, unstable soils, and other environmental and safety concerns related to the city’s unique topography. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.</p>
Goal LU-10	Minimize the visual impacts of hillside development, especially on ridgetops.	<p>Consistent: Most new housing units would be required to go through the design review process. Additionally, lands within the hillside areas of the city are typically constrained in terms of development intensity due to the steep slope of several hillside lots, unstable soils, and other environmental and safety concerns related to the city’s unique topography. In some circumstances, State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.</p>
Policy LU-10.1	Require development proposals in hillside areas to undertake visual analyses and mitigate significant visual impacts, especially to ridgetops.	<p>Consistent: Most new housing units would be required to go through design review process. Additionally, development would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.</p>

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy LU-12.1	Enhance the visual character of the City by encouraging compatibility of architectural styles that reflect established architectural traditions.	Consistent: Most new housing units would be required to go through the design review process. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy LU-12.7	Development proposals impacting any of the City’s heritage land and/or any historic resources listed on any local or state inventory shall be reviewed by Heritage Preservation Commission and the Planning Commission, as required.	Consistent: All new development would adhere to existing policies relating to historic resources. Further, the Housing Element Update includes Program 2-2.3: Historic Preservation Program and Mills Act. The City will implement its Historic Preservation and Mills Act programs to offer property tax relief as an incentive to preserve, rehabilitate and maintain historic resources in Saratoga.
Policy LU-12.8	For any project development affecting structures that are 50 years of age or older, conduct an historic review.	Consistent: All new development would adhere to existing policies relating to historic resources.
Policy LU 12.9	Conduct reconnaissance level analyses of new development projects to ensure that no significant archeological, prehistoric, paleontological Native American resources would be disturbed. If such resources are found, appropriate steps shall be taken, consistent with CEQA requirements to protect these resources.	Consistent: All new development would adhere to existing policies relating to archeological, prehistoric, paleontological Native American resources. Furthermore, proposed development would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA.
Policy LU 13.1	Utilize the design review process and the California Environmental Quality Act in the review of proposed residential and non-residential projects to promote high quality design, to ensure compliance with applicable regulations, to ensure compatibility with surrounding properties and use, and to minimize environmental impacts. Special attention shall be given to ensuring compatibility between residential and non-residential uses (e.g., land use buffering).	Consistent: Most new housing units would be required to go through the design review process. Furthermore, the City would require review of potential environmental impacts when a development is proposed that meets threshold requirements for review under the CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy LU-13.2	When considering development proposals, including new construction, remodeling and/or additions to existing buildings, the city shall adhere to applicable adopted design guidelines, such as, but not limited to, the Residential Design Handbook, the Village Plan Design Guidelines and the Saratoga-Sunnyvale Road Gateway Guidelines, as may be adopted and revised by City Council from time to time.	Consistent: Most new housing units would be required to go through the design review process. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Goal LU-15	Improve local and regional air quality by ensuring all development projects incorporate all feasible measures to reduce air pollutants.	Consistent: As discussed in detail in <i>Section IV.B, Air Quality</i> , proposed development projects would be required to comply with Bay Area Air Quality Management District’s (BAAQMD) measures to reduce fugitive dust emissions. In addition, Mitigation Measure AIR-1 would require residential projects with more than 114 single-family units or 240 multi-family units to retain a qualified air quality consultant to identify measures to reduce the project’s criteria air pollutant and precursor emissions below the BAAQMD’s recommended thresholds of significance.
Policy LU-15.1	Require development projects to comply with Bay Area Air Quality Management District (BAAQMD) measures to reduce fugitive dust emissions due to grading and construction activities.	Consistent: All new development projects would be required to comply with the BAAQMD measures to reduce fugitive dust emissions.
Policy LU-15.3	Discourage the use of wood burning fireplaces by limiting to one per residence, including outdoor/patio fireplaces.	Consistent: All new development projects would be required to comply with BAAQMD Regulation 6, Policy 6-3-306, which states that effective November 1, 2016, no wood-burning device can be installed in new building construction.
CIRCULATION AND SCENIC HIGHWAY		
Policy CI-2.4	Accept Level of Service E or F operations on City-maintained roadways after finding that: 1) no practical and feasible improvements can be implemented to mitigate the lower levels of service, or 2) vehicle capacity enhancements would conflict with existing or planned bicycle, pedestrian, or transit facilities and services. A proposed development that exacerbates LOS E or F operations and causes a significant intersection impact should also be considered for approval if it will provide a clear, overall benefit to the City (e.g., library expansion or relocation, new community center).	Consistent: Proposed development projects would be required to prepare traffic impact reports consistent with City policy. Furthermore, proposed projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under the CEQA. It should be noted that the CEQA Guidelines now identify VMT as the most appropriate metric for evaluating a project’s transportation impacts.
Policy CI-2.5	Ensure that new development or redevelopment projects provide adequate property dedication to accommodate future roadway and multi-modal access improvements at key intersections and other potential conflict areas.	Consistent: Proposed development projects would be required to prepare traffic impact reports consistent with City policy. As site specific projects are proposed, the traffic impact reports would evaluate whether adequate property dedication to accommodate roadway improvements has been incorporated into the project.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy CI-2.13	Require development projects to mitigate and reduce their respective traffic and parking impacts by implementing practical and feasible street improvements to improve multi-modal access.	Consistent: Proposed development projects would be required to prepare traffic impact reports consistent with City policy. As site specific projects are proposed, the traffic impact reports would evaluate whether adequate improvements has been incorporated into the project to improve multi-modal access.
Policy CI-6.8	Require increased setbacks and landscaping for commercial and multifamily residential structures on corner lots adjacent to arterial streets, as required, to reduce the visual impact of such structures and to enhance the appearance of important intersections where it is determined by the City that such increased setbacks are necessary to preserve the scenic qualities of the highway.	Consistent: Most new housing units would be required to go through the design review process, which would address building design and site development parameters. Proposed development projects would be required to prepare traffic impact reports, consistent with City policy. As site specific projects are proposed, the traffic impact reports would evaluate adequate setback and sightlines at intersections.
OPEN SPACE AND CONSERVATION		
Policy OSC-2.1	Ensure that all development proposals, public and private, are sensitive to the natural environment and the community’s open space resources.	Consistent: Proposed development projects would be required to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy OSC-5.7	The City shall regulate developments along designated trails in order to provide sufficient trail right-of-way and ensure that development adjacent to the corridors does not detract from the scenic and aesthetic qualities of the corridor.	Consistent: Most new housing units would be required to go through the design review process, which would address building design and site development parameters. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy OSC-6.3	Future land uses within the western hillside or any Sphere of Influence expansion area shall be reviewed by the City through the development review process to ensure consistency both with existing patterns of land use in the unincorporated hillside areas, and with the City’s desire to maintain the area as predominantly open space and rural.	Consistent: Most new housing developments would be required to go through the design review process, which would address building design and site development parameters. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy OSC-7.1	Future land use proposals within the western hillside area shall be reviewed by the City through the development review and environmental review processes to ensure that improvements blend in with the natural environment. Criteria shall include but not be limited to the use of unobtrusive colors, controlled grading, limited disruption of natural vegetation, use of structural height limits, and structural design and density guidelines. Special consideration should be given to the eventual development of a canopy effect of tree growth.	Consistent: Most new housing developments would be required to go through the design review process, which would address building design and site development parameters. Additionally, proposed development projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy OSC-8.1	In evaluating future land uses, efforts shall be made to maintain agricultural lands as a component of open space and to preserve the rural and agricultural heritage of Saratoga. The City shall discourage the cancellation of Williamson Act contracts.	Potentially Inconsistent: One of the potential housing sites has a Williamson Act contract in the non-renewal process (site owners initiated the non-renewal process in 2018, prior to the drafting of the Housing Element Update) and one pipeline project has a Williamson Act contract that will be cancelled when the applicable cancellation fees have been paid. It should be noted that both sites are located in areas that are currently developed and surrounded on all sides by urban/suburban uses. Additionally, there is no active agricultural production activities currently at these sites.
Policy OSC-9.2	Concentrate development in those portions of the community least susceptible to soil erosion and minimize grading and the introduction of impervious surfaces. Where appropriate, consider the use of on-site detention or retention basins to minimize stormwater runoff from sites.	Consistent: The majority of Housing Inventory Sites are located within urban and developed areas of the city. For sites identified in the Hillside Area, Article 15-13 provides the zoning regulations for the Hillside Residential District, and requires that grading be designed to avoid erosion, slides, and other hazards. No site-specific development plans are included in the project, so inclusion of on-site detention and retention basins cannot be evaluated. Compliance with the State Water Resources Control Board’s Construction General Permit, including the preparation and implementation of Stormwater Pollution Prevention Plans, would ensure that developments that would disturb 1-acre or more of land would result in less-than-significant impacts related to erosion or loss of topsoil during construction. As development projects are proposed, projects would need to comply with Policy LU 13.1, requiring review of potential

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy OSC 9.3	Implement land use controls to protect watershed lands on the upper elevations of hillsides.	<p>environmental impacts when a development is proposed that meets threshold requirements for review under CEQA.</p> <p>Consistent: Article 15-13 provides the zoning regulations for the Hillside Residential District and requires that grading be designed to avoid erosion. Compliance with the State Water Resources Control Board’s Construction General Permit, including the preparation and implementation of Stormwater Pollution Prevention Plans, would ensure that developments that would disturb 1-acre or more of land would result in less-than- significant impacts related to erosion or loss of topsoil during construction. As site-specific development projects are proposed, projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA.</p>
Policy OSC-11.1	Minimize development that would encroach into important wildlife habitats, limit or restrict normal range areas, or restrict access to water food or shelter. This includes limitations on the installation of barrier fencing in hillside areas.	<p>Consistent: The majority of Housing Inventory Sites are located within urban and developed areas of the city. In the Hillside Area, the most common zoning district implementing the RHC designation is the Residential-Open Space (R-OS) zoning district. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) contains criteria to guide development away from environmentally sensitive areas, such as riparian corridors and other wildlife habitats. As site-specific development plans are proposed, projects would be required to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA.</p>
Policy OSC-11.2	Through the development and CEQA process, preserve, protect, and maintain riparian habitats and creek corridors. This includes requiring biological surveys of parcels of land that could contain sensitive species or their habitats prior to allowing development on these parcels.	<p>Consistent: The majority of Housing Inventory Sites are located within urban and developed areas of the city. In the Hillside Area, the most common zoning district implementing the RHC designation is the Residential-Open Space (R-OS) zoning district. Article 15-20 of the Saratoga Municipal Code (R-OS: Residential Open Space District) contains criteria to guide development away from environmentally sensitive areas, such as riparian corridors and other wildlife habitats. As site-specific development plans are proposed, projects would</p>

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy OSC-12.2	Development projects should include the preservation of protected trees and other significant trees. Any adverse effect on the health and longevity of native oak trees, protected or other significant trees should be avoided through appropriate design measures and construction practices. When tree preservation is not feasible, individual development projects shall include appropriate tree replacement as approved by the City.	need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. Consistent: Most new housing developments would be required to go through the design review process, which would address building design and site development parameters. Individual development projects may be required to incorporate tree replacement as approved by the City. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy OSC-15.1	Require development projects to comply with Bay Area Air Quality Management District (BAAQMD) measures to reduce dust emissions due to grading and construction activities.	Consistent: All new development projects would be required to comply with the BAAQMD measures to reduce fugitive dust emissions.
SAFETY ELEMENT		
Policy SAF-1.1	No development shall be permitted in geologic hazard areas without individual site-specific geotechnical investigations to determine depth of bedrock, soil stability, location of rift zones and other localized geotechnical problems.	Consistent: The project makes no changes to existing law requiring all new development projects in geologic hazard areas to prepare individual site-specific geotechnical investigations and implement any geotechnical recommendations.
Policy SAF-1.2	Development in areas subject to natural hazards shall be limited and shall be designed to protect the environment, inhabitants and general public. In areas that have been proven to be unsafe, development of structures for human habitation shall be prohibited to the maximum extent permitted by law.	Consistent: The project makes no changes to existing law requiring all new development projects in areas subject to natural hazard to prepare individual site-specific geotechnical investigations and implement any geotechnical recommendations.
Policy SAF-1.3	Proposals for General Plan amendments, zone changes, use permits, variances, building site approvals, and all land development applications subject to environmental assessment according to CEQA guidelines shall be reviewed for hazardous conditions utilizing the most current data.	Consistent: Proposed development projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA.
Policy SAF-3.1	All proposed projects adjacent to floodways and floodplains that could affect Water District right-of-way, should be referred to the District for review and comments.	Consistent: If development projects are proposed adjacent to floodways or floodplains which could affect Water District rights-of-way, these projects will be referred to the District consistent with City policy.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy SAF-3.3	The City shall continue to enforce its existing regulations pertaining to impervious coverage to reduce potential hazards from excessive run-off.	Consistent: The project does not propose changes to existing impervious coverage regulations.
Policy SAF-4.1	<p>The City shall require the installation of an early warning fire alarm system in each of the following cases:</p> <ul style="list-style-type: none"> a. All new single-family dwellings and any existing single-family dwellings that are expanded by fifty percent or more in floor area, where such new or expanded dwellings are located within designated hazardous fire area. b. All new single-family dwellings having a gross floor area in excess of 5,000 square feet. c. Any existing single-family dwelling that is expanded by fifty percent or more in floor area which, after such expansion, will exceed 5,000 square feet in gross floor area. d. All new multi-family dwellings and other new structures having multiple sleeping units, such as hotels, motels, apartments, condominium or other community housing projects, townhouses and nursing homes. e. Any existing multi-family dwelling or other existing structure having multiple sleeping units as described in Paragraph (d) above, which is expanded by fifty percent or more in gross area. 	Consistent: The project does not propose changes to existing City requirements regarding installation of early warning alarm systems.
NOISE ELEMENT		
Policy NOI-2.1	An acoustical analysis is to be conducted for proposed Residential and Quasi-Public development where the existing noise level exceeds Outdoor DNL 60 dB to determine measures needed to reduce noise impacts to meet City noise standards.	Consistent: The project does not propose changes to existing City noise standards. As site specific development plans are proposed, these projects would be required to meet City requirements regarding required noise analysis. Additionally, projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.

TABLE IV.I-4 EXISTING GENERAL PLAN POLICIES ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT

Goal or Policy Number	Goal or Policy	Project Consistency
Policy NOI-2.2	New residential development shall be designed and constructed to provide an interior noise level of DNL 45 dB or less in habitable rooms (due to outdoor sources).	Consistent: The project does not propose changes to existing City noise standards. As site specific development projects are proposed, projects would be required to meet the identified City interior noise level standards.
Policy NOI-2.3	Residential outdoor open space intended for use and enjoyment shall be designed to meet Outdoor DNL 60 dB. This policy does not apply to private exterior balconies. Where this level cannot feasibly be met by incorporating reasonable measures, such as strategic site layout and noise barriers, DNL 65 dB may be approved.	Consistent: The project does not propose changes to existing City noise standards. As site specific development projects are proposed, projects would be required to meet the identified City outside noise level standards.
Policy NOI-3.1	Changes in use and development shall be reviewed for noise impacts to neighboring land uses.	Consistent: As site specific development projects are proposed, projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.
Policy NOI-3.2	New development shall be required to utilize appropriate measures to reduce noise impacts to the adopted noise standards; and acoustical analysis may be required by the approving authority.	Consistent: The project does not propose changes to existing City noise standards. As site specific development projects are proposed, projects would need to comply with Policy LU 13.1, requiring review of potential environmental impacts when a development is proposed that meets threshold requirements for review under CEQA. In some circumstances State law will allow the City to consider only goals and policies with objective standards. The project includes new zoning provisions to include such standards.

Source: City of Saratoga General Plan.

3. Impacts and Mitigation Measures

This section analyzes the impacts related to land use, agriculture, and forestry resources that would result from implementation of the project. It begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes potential impacts associated with the project and identifies mitigation measures to address these impacts, as needed.

It should be noted that policy conflicts do not, in and of themselves, constitute a significant environmental impact unless it is a policy adopted for the purpose of avoiding or mitigating an environmental effect and the inconsistency would result in a significant adverse physical impact. Please note that planning documents that pertain to specific technical topics (e.g., Air Quality) are discussed in those topical sections of this Draft EIR.

a. Significance Criteria

Implementation of the project would result in a significant land use, agriculture, or forestry resources impact if it would:

- Physically divide an established community;
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect;
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

b. Analysis and Findings

The following discussion describes the potential impacts associated with land use, agriculture and forestry resources that would result from the project.

(1) Physically Divide an Existing Community (Criterion 1)

Physically dividing an existing community typically occurs when a physical barrier is constructed that impedes movement within a community. For example, construction of a freeway or rail line through an existing community would substantially impair movement between the two portions of the bisected community. Such an impact could also result from the removal of a bridge linking two areas of a community.

Implementation of the project would result in the construction of new housing units, adoption of General Plan amendments, and include the rezoning of some sites to allow residential development or more intense residential development. The project does not include any roadway or infrastructure changes and would not physically divide an existing community.

(2) Conflict with Land Use Policy (Criterion 2)

The project includes the Housing Element Update, the 2040 General Plan Updates, new General Plan designations, and rezoning of selected parcels within the city. The Housing Element Update would comply with State planning law and the Housing Accountability Act and would help the City meet its RHNA obligation as determined by ABAG. The project is a policy and planning document that, if adopted, would identify sites for future housing development. In accordance with State law, the proposed Housing Element Update policies would encourage development of new housing units and rehabilitation of existing housing units. Additional policies would reduce government constraints to housing development and would include zoning code amendments to facilitate meeting this objective.

Potential land use policy conflicts are listed above in Table IV.I-4. Conflicts with a general plan do not inherently result in a significant effect on the environment within the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "Effects analyzed under CEQA must be related to a physical change." Section 15125(d) of the CEQA Guidelines states that EIRs shall discuss any inconsistencies between the project and applicable general plans in the *Setting* section of the document (not under Impacts). Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) explicitly focuses on environmental policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation ...adopted for the purpose of avoiding or mitigating an environmental effect." Even a response in the affirmative, however, does not necessarily indicate the project would have a significant effect, unless a physical change would occur.⁸ To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed in this Draft EIR in the section that most aptly applies to that impact (e.g., Noise).

⁸ California Government Code Section 65000.

General Plan and Zoning

The proposed Housing Element Update Policies, as well as proposed 2040 General Plan Updates policies would be added to the General Plan and, consequently, would be generally considered consistent with existing General Plan policies. The updated elements would comply with State Planning Law requirements for these general plan elements, and the proposed housing sites would meet the RHNA allocations for the City assigned by ABAG in compliance with California Housing Element Law.

The project also includes rezoning of several of the City of Saratoga's non-vacant housing sites to allow for development potential consistent with the City's RHNA requirements. Future development of the parcels with new housing would be consistent with the amended General Plan and zoning designations. This rezoning program would consist of the creation and adoption of three new mixed-use zoning districts: "Mixed Use" (MU), "Mixed Use High Density" (MU/HD), and "Mixed Use Very High Density" (MU/VHD). These new zoning districts would allow for mixed-use residential development at greater densities and height in various parts of the city than currently permitted, and require at least 50 percent of building floor area, and allow for up to 100 percent of building floor area, to be dedicated to residential uses. Additionally, the City would create three new corresponding General Plan Land Use designations to accommodate these new zoning districts, as described in *Chapter III, Project Description*.

As described in Table IV.I-4, potential policy inconsistencies were identified regarding agricultural uses. The Housing Element Update identified two housing sites that have included agricultural uses in the past. Both sites are located within areas surrounded by urban/suburban uses on all side. While both sites had Williamson Act contracts, owners of these parcels began the non-renewal process in 2018. For the Marshall Lane Subdivision (APNs: 39702110 and 39702111), a Pipeline Project, on October 6, 2021 the City of Saratoga City Council passed and adopted a resolution for the Cancellation of the Williamson Act Contract (Resolution No: 21-070). The cancellation would go into effect when applicable cancellation fees are paid, and no development could occur until the cancellation fees are paid. For the Allendale/Chester Housing Site (APN: 39701071), identified as a Nonvacant/Underutilized Site within the Housing Element Update, the Williamson Act Contract on the property would end January 1, 2028; no development could occur on this parcel until 2028. As the Williamson Act Contract non-renewal process began in 2018, prior to the drafting of the Housing Element Update, and the sites are not in current active agricultural production, inclusion of these sites in the Housing Element Update would not result in a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Any proposed housing development would need to be consistent with the General Plan and zoning designations. Where adverse physical effects on the environment could result from the future development of housing on the proposed housing sites, those potential impacts are

addressed in the appropriate environmental resource section. Additionally, potential conflicts with planning documents pertaining to a specific environmental resource, such as Air Quality, are discussed in the technical sections pertaining to those resources.

Future housing development pursuant to the proposed Housing Element Update would be required to be consistent with the General Plan, including policies and programs adopted for the purpose of avoiding or reducing adverse physical effects on the environment. As future housing projects are proposed, they would be reviewed for consistency with the General Plan and the applicable zoning regulations. The General Plan contains many policies, some of which may compete with one another. The Planning Commission and City Council, in deciding whether to approve a project, will decide whether, on balance, a project is consistent with the General Plan.

The project would not eliminate or modify any policies or measures from the General Plan that are intended for environmental protection and as demonstrated in Table IV.I-4 and described above, any potential conflicts with General Plan policies or measures that are intended for environmental protection would not result in a significant impact.

Plan Bay Area 2050

The project is consistent with the regional and sub-regional growth projections contained in Plan Bay Area 2050, which is a planning document that was adopted for the purpose of avoiding or mitigating an environmental effect. Among other objectives, Plan Bay Area 2050 was developed to help the region reduce GHG emissions. The strategies are intended to protect vulnerable communities from sea level rise, wildfires, and earthquakes while improving air quality—all explicit environmental objectives.

Plan Bay Area 2050 encourages both market-rate and affordable housing development in High-Resource Areas and Transit-Rich Areas (two of the four growth geographies designated in the plan) to promote a healthier balance of jobs and housing throughout the Bay Area. ABAG and MTC have provided an interactive online GIS map of the nine-county Bay Area that allows users to zoom in to specific localities.⁹ There are both High Resource Areas and Transit-Rich Areas Plan Bay Area 2050 growth geographies located within the City of Saratoga. Since one of the purposes of the growth geographies is to encourage the development of housing in proximity to existing and future employment centers and/or public transit, housing developed within and in close proximity to a growth area would contribute to meeting this objective.

⁹ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area 2050 Growth Geographies. Available at: <https://opendata.mtc.ca.gov/datasets/d74d81cfce2a4bc9851858fo87b78f49/explore?location=37.284551%2C-121.995837%2C13.21>, accessed October 13, 2022.

The proposed housing sites would further new housing development in Saratoga in compliance with its RHNA, which would advance residential growth promoted in Plan Bay Area 2050. The housing sites identified in the proposed Housing Element are generally supportive of and consistent with the residential growth fostered in Plan Bay Area 2050 and demonstrates the project's consistency with Plan Bay Area 2050.

RHNA and Plan Bay Area 2050 discuss planning for housing on two separate time horizons: RHNA focuses on the shorter-term with its eight-year cycle, while Plan Bay Area 2050 presents a longer-term vision for the next 30 years. The two efforts, however, are coordinated, with RHNA's near-term focus setting the stage for early implementation of Plan Bay Area 2050's envisioned growth pattern.

The project has been developed specifically for the City to meet its RHNA obligation as assigned to it by ABAG. In fact, the Housing Element Update demonstrates that the city has capacity to accommodate 1,994 housing units, which is 282 housing units beyond its RHNA of 1,712 housing units. The project is inherently consistent with RHNA, and RHNA, as explained above, is consistent with Plan Bay Area 2050. Thus, the project is consistent with Plan Bay Area 2050.

As demonstrated in the preceding discussions, the project would not conflict with a land use plan or policy adopted for the purpose of avoiding or reducing an adverse environmental effect. This would be a less-than-significant impact.

(3) Farmland (Criteria 3, 4, and 7)

Impact LU-1: Implementation of the project would allow new development in areas of the planning area that are designated Unique Farmland, under Williamson Act contract, or include agricultural zoning. (S)

The Housing Element Update identifies two potential Housing Inventory Sites that have had agricultural uses in the recent past. These sites are described below.

- *Marshall Lane Subdivision*. This site includes the following APNs: 39702110 and 39702111. The zoning for this housing site is R-1-40,000. The housing project was approved for the site in October 2021 and includes nine units. On September 24, 2018, the landowners submitted a non-renewal notice for their Williamson Act Contract. On October 6, 2021 the City of Saratoga City Council passed and adopted a resolution for the Cancellation of the Williamson Act Contract (Resolution No: 21-070). The cancellation will go into effect when the applicable cancellation fees are paid. The project site is not in active agricultural production. This site is surrounded by urban/suburban uses on all sides.
- *Allendale/Chester Housing Site*. This 12.13-acre site includes the following APN: 39701071. The zoning for this housing site is Agricultural Preserve/Opens Space Overlay District (AP/OS).

Based on the proposed rezoning of the site, it is anticipated the Allendale/Chester Housing Site is suitable to accommodate the development of 24 residential units. On September 24, 2018, the landowners submitted a non-renewal notice for their Williamson Act Contract; the Williamson Act Contract on the property would end January 1, 2028. Additionally, the FFMP has identified this parcel as Unique Farmland. The project site is not in active agricultural production. This site is surrounded by urban/suburban uses on all sides.

One potential housing site has agricultural zoning, both sites have had agricultural production on the site in the past, and the Allendale/Chester Housing Site is identified as Unique Farmland by the FMMP and has a Williamson Act Contract in the non-renewal process. Additionally, there are other parcels within the planning area that have Unique Farmland designation or are currently under a Williamson Act Contract.

Implementation of the Housing Element Update would result in housing development on the identified sites. While the Allendale/Chester Housing Site is currently in the Williamson Act non-renewal process and would not be able to be developed until 2028, and the Marshall Lane site's Williamson Act Contract would be canceled when applicable fees are paid, the Allendale/Chester Housing Site is currently zoned for agricultural uses and has been identified as Unique Farmland by the FMMP. As such, implementation of the project would result in a significant and unavoidable impact to farmland resources within the city. The agricultural impact would be limited to these sites, which are currently surrounded by suburban/urban development; development on these parcels would not cause additional land identified for an agricultural use to be developed. There is, however, no feasible mitigation measure to reduce this potential impact to a less-than-significant level; this impact would be considered significant and unavoidable.

Mitigation Measure LU-1: Farmland Resources. Implementation of the project would result in housing development on the Marshall Lane Subdivision site and Allendale/Chester Housing Site. The Allendale/Chester Housing Site is currently zoned for agricultural uses; has been identified as Unique Farmland by the Farmland Mapping and Monitoring Program (FMMP). Both sites are currently under Williamson Act Contracts. As such, this impact would result in a significant and unavoidable impact to farmland resources within the city. (SU)

(4) Forestry Resources (Criteria 5, 6, and 7)

As described in the *Setting* section, the planning area does not contain any "Timberland" as defined by Public Resources Code Section 4526 and California Government Code Section 51104(f). In addition, there are no "Timberland Production Zones" as defined by Government Code Section 51104(g) within the planning area.

The majority of forest land in Saratoga is in the western portion of the city. The Housing Element Update has identified potential development sites within the area that may have forestry

resources. Most sites in this area would be limited to one unit per parcel. Only 14 acres of forest land are located within the city limits and the project does not propose any expansion of the city limits into the SOI.

The 2040 General Plan Updates contain policies and implementation measures that provide for the protection of forest lands within the planning area. Policy OSC-12.4 requires the City to manage forested lands in the SOI to maximize environmental protection and to discourage logging to the maximum extent possible, consistent with proper fire protection standards and practices. Policy OSC-6.3 requires the City to review future land uses within the western hillside or any SOI expansion area through the development review process to ensure consistency both with existing patterns of land use in the unincorporated hillside areas, and with the City's desire to maintain the area as predominantly open space. Policy LU-8.1 requires that development proposals minimize impacts to ridgelines and significant natural hillside features, including but not limited to steep topography, major stands of vegetation, especially native vegetation, oak trees, and watercourses.

The Saratoga Municipal Code also contains rules and regulations to protect and preserve forest lands within city limits. Article 15-50 (Tree Regulations) protects native trees with a diameter at breast height (DBH) of 6 inches or more and non-natives with a DBH of 10 inches. Development associated with implementation of the Housing Element Update would be required to comply with Article 15-50, which requires that tree removal, pruning or encroachment permit be obtained from the City prior to the removal, pruning, or encroachment upon a protected tree.

Development envisioned by the project could result in an incremental increase in new development, which could result in the incremental conversion of forest land to non-forest uses. However, compliance with the General Plan policies and implementation measures and adherence to the City's Tree Ordinance, would ensure that impacts to forest land remain at less than significant levels.

c. Cumulative Land Use, Agriculture, and Forestry Resources Impacts

CEQA defines cumulative impacts as "two or more individual effects, which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the project alone, or together with other projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

For the land use analysis, the cumulative analysis would include increased development anticipated within the City's General Plan through the year 2040, in addition to the following two specific projects proposed within San Jose:

- **El Paseo and 1777 Saratoga Avenue Mixed Use, San Jose.** Planned Development Rezoning from CG Commercial General Zoning District and CP Commercial Pedestrian Zoning District and a Planned Development Permit) for approximately 165,949 square feet of commercial and 994 residential units.
- **Costco Westgate Project, 5287 Prospect Road, San Jose.** The partial demolition of the existing Westgate West shopping center totaling approximately 188,265 square feet and construction of an approximately 166,058-square-foot Costco with an associated tire center, temporary outdoor sales, and rooftop parking on an approximately 19.8-gross-acre site.

As explained above, implementation of the project would not result in a significant land use impact by potentially physically dividing an established community; therefore, it would not make a cumulatively considerable contribution to an environmental impact related to physically dividing an established community.

The project would be consistent with applicable land use plans and policies adopted for the purpose of avoiding or reducing an adverse environmental effect. Saratoga's General Plan policies meeting this criterion are listed in Table IV.I-4, which provides a brief explanation of how the project would generally be consistent with existing policies; potential policy conflicts were identified. While future development in Saratoga could conflict with environmental policies adopted by the City, such projects would either need to be modified to conform with adopted policy or obtain approval of a general plan amendment to modify the applicable policy. Multiple future development projects seeking general plan amendments to comply with the City's adopted environmental policies could potentially result in significant cumulative impacts to the environment if multiple projects did not conform to the City's policies adopted for the purpose of avoiding or reducing an adverse environmental effect. Similarly, multiple future projects conflicting with Plan Bay Area 2050 could make cumulatively considerable contributions to environmental impacts Plan Bay Area 2050 is intended to reduce.

It is expected that the City would continue to review future development proposals to ensure compliance with the City's environmental policies and utilize its discretion to disapprove projects and/or general plan amendments that would cause significant cumulative impacts to the environment. However, no such conflicts, including those with Plan Bay Area 2050, have been identified for the current project, so it would not make a cumulatively considerable contribution to conflicts with land use plans and policies adopted for the purpose of avoiding or reducing an adverse environmental effect. This would be a less-than-significant impact.

As described above, implementation of the project would result in a significant unavoidable farmland impact. The parcels identified with this impact are limited in size (approximately 22.37 acres) and are currently surrounded by urban/suburban development. Given the limited size of these parcels, and that development would not result in conversion of farmland in other places

within the city or county, the loss of farmland from the project would not be considered cumulatively considerable and the potential cumulative impact would be considered less than significant.

Development associated with the project would be required to comply with General Plan policies and implementation measures related to the protection of forest lands within the planning area. Further, new development under the General Plan will be required to comply with the City's Tree Ordinance. All projects within the cumulative geographic context would be required to comply with City and County ordinances as well as City and County General Plan policies that address forestry resources. Therefore, implementation of the project would not result in a considerable incremental contribution to cumulative impacts, because the city is largely built out, the General Plan contains policies to protect forestry resources, and future development associated with the project be required to comply with the City's Tree Ordinance. Therefore, cumulative impacts would be less than significant.

J. NOISE

This section assesses the potentially significant impacts to the existing ambient noise environment in the city of Saratoga planning area that could result from implementation of the project. This section also discusses the basics of environmental acoustics, noise regulations by various agencies, and the existing noise environment in the city of Saratoga.

1. Setting

a. General Information on Noise

Noise is defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is measured in units of decibels (dB) on a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but cannot accurately describe sound as perceived by the human ear, which is only capable of hearing sound within a limited frequency range. To better characterize noise levels perceived by a human ear, a decibel scale called A-weighting (dBA) is typically used. On this scale, the low and high frequencies are given less weight than the middle frequencies. Decibels and other acoustical terms are defined in Table IV.J 1. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table IV.J-2.

In an unconfined space, such as outdoors, noise attenuates with distance. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces (e.g., cement or asphalt) and by 7.5 dBA for every doubling of distance for soft surfaces (e.g., undeveloped or vegetative). Noise levels at a known distance from line sources (e.g., roads, highways, and railroads) are reduced by 3 dBA for every doubling of the distance for hard surfaces and 4.5 dBA for every doubling of distance for soft surfaces. Greater decreases in noise levels can result from the presence of intervening structures.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:¹

- A change of 1 dBA cannot typically be perceived except in carefully controlled laboratory experiments.
- A 3-dBA change is considered a just-perceivable difference.
- A minimum of 5-dBA change is required before any noticeable change in community response is expected.
- A 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness.

¹ Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

TABLE IV.J-1 DEFINITION OF ACOUSTICAL TERMS

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise “level.” This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent Noise Level (L_{eq})	The average A-weighted noise level during the measurement period. For this CEQA evaluation, L_{eq} refers to a 1-hour period unless otherwise stated.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels during the evening from 7:00 to 10:00 p.m. and after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level (L_{dn} or DNL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The existing level of environmental noise at a given location from all sources near and far.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Source: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers. Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

TABLE IV.J-2 TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

Noise Source (Distance in Feet)	A-Weighted Sound Level in Decibels (dBA)
Jet Aircraft (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42

Source: Charles M. Salter Associates Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

Because sound pressure levels are based on a logarithmic scale, they cannot be added or subtracted using linear methods. For instance, if one noise source emits a sound level of 90 dBA, and a second source is placed beside the first that also emits a sound level of 90 dBA, the combined sound level is 93 dBA, not 180 dBA. In other words, a doubling of sound source is equivalent to an increase of 3 dBA. When the second noise source is lower than the first noise source by at least 10 dBA, the contribution from the second noise source to the overall sound level is negligible (i.e., close to zero). In such cases, no adjustment factor is needed because the contribution from the lower noise source makes no perceptible difference in what people can hear or measure. For example, if one noise source generates a noise level of 95 dBA and another noise source is added that generates a noise level of 80 dBA, the higher noise source dominates, and the combined noise level will be 95 dBA.

Traffic noise levels are often expressed in terms of the hourly dBA. The noise levels generated by vehicular sources mainly depend on traffic volume, the speed, and the percent of trucks within the fleet. Increases in these three factors will lead to higher noise levels. As mentioned above, doubling the number of sources, such as traffic volume, increases the noise level by approximately 3 dBA² due to the logarithmic nature of noise levels.

b. General Information on Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Vibration amplitudes are usually expressed as either Peak Particle Velocity (PPV) or as Root Mean Square (RMS) velocity. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration event. Thus, RMS is more appropriate for evaluating human response to vibration. PPV and RMS are described in units of inches per second (in/sec), and RMS is also often described in vibration decibels (VdB).

c. General Information on Groundborne Noise

Groundborne vibration can transmit energy into buildings and structures. This vibration can cause a rumbling sound and audible noise within the buildings, which is referred to as groundborne

² Federal Highway Administration (FHWA), 2018. Techniques for Reviewing Noise Analyses and Associated Noise Reports.

noise. Like noise that travels through the air, groundborne noise is usually measured in decibels (dB or dBA). Groundborne noise is typically dominated by low-frequency components, and the non-linearity of human hearing causes sounds dominated by low-frequency components to seem louder than higher-frequency sounds with the same sound level. As a result, groundborne noise has the potential to disturb people at lower sound levels than broadband noise.

The relationship between groundborne vibration and groundborne noise depends on the frequency content of the vibration. For example, the groundborne noise measured in dBA will be approximately 40 dBA less than the groundborne vibration measured in VdB if the spectrum peak is around 30 Hz, and 25 dBA lower if the spectrum peak is around 60 Hz. Environmental vibration is rarely of sufficient magnitude to be perceptible or cause audible groundborne noise unless there is a specific vibration source close by, such as a railroad line.

d. Noise-Sensitive Receptors

Noise-sensitive receptors are defined as land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. Noise-sensitive receptors include residences, schools, churches, hospitals, elderly-care facilities, hotels, libraries, auditoriums, parks, and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses.

e. Existing and Projected Traffic Noise Levels

Noise exposure in the city of Saratoga is principally generated by vehicular traffic on highways and arterial roads (Table IV.J-3). Traffic noise levels depend primarily on vehicular speed and total traffic volume, but also the type of vehicle. The primary source of noise from automobiles is high-frequency tire noise. Trucks, older automobiles, and motorcycles produce significant engine and exhaust noise, and trucks can also generate wind noise.

Traffic noise levels in the city of Saratoga in the year 2013 were assessed using noise measurements and the Federal Highway Administration's Highway Traffic Noise Model, as reported in the City of Saratoga Updated Noise Element of the General Plan in 2014. Noise levels for the year 2019 were estimated based solely on changes to traffic volumes between the years 2013 and 2019 based on traffic counts taken in 2019. The other model parameters, such as number of travel lanes, speed of traffic, and vehicle mix for the study roadway segments were assumed to remain the same.

TABLE IV.J-3 EXISTING AND PROJECTED TRAFFIC NOISE LEVELS

Roadway Segment	Segment (From)	Segment (To)	DNL at 50 Feet from Centerline (dBA)	
			2013	2019
Allendale Avenue	Fruitvale Avenue	Quito Road	64	64
Big Basin Way	Saratoga-Sunnyvale Road	Pierce Road	68	68
Cox Avenue	Saratoga-Sunnyvale Road	Saratoga Avenue	66	66
Fruitvale Avenue	Saratoga Avenue	Allendale Avenue	69	69
	Allendale Avenue	Saratoga-Los Gatos Road	65	64
Pierce Road	Saratoga-Sunnyvale Road	SR-9	59	60
Prospect Road	Saratoga-Sunnyvale Road	Miller Avenue	70	71
	Miller Avenue	Lawrence Expwy	70	71
Quito Road	Saratoga Avenue	Allendale Avenue	68	68
	Allendale Avenue	Saratoga-Los Gatos Road	66	66
Saratoga Avenue	Lawrence Expwy	Cox Avenue	72	72
	Cox Avenue	SR-85	72	72
	SR-85	Fruitvale Avenue	72	72
	Fruitvale Avenue	Saratoga-Sunnyvale Road	68	67
Saratoga-Los Gatos Road	Saratoga Avenue	Fruitvale Avenue	67	67
	Fruitvale Avenue	Quito Road	71	71
Saratoga Sunnyvale Road	Prospect Road	Cox Avenue	71	71
	Cox Avenue	Saratoga Avenue	70	71
SR-85	(Cupertino)	Saratoga Avenue	75	--
	Saratoga Avenue	(Los Gatos)	75	--

Note: -- = No available data

Source: (2013 noise levels) City of Saratoga Updated Noise Element of the General Plan, Charles M. Salter Associates, Inc., March 5, 2014; (2019 noise levels) General Plan Update and EIR, Saratoga, CA –Traffic Noise Modeling Results for 2040, Illingworth & Rodkin, Inc., March 14, 2019.

2. Regulatory Setting

In California, noise is primarily regulated at the local level, through the implementation of general plan policies and local noise ordinances.

a. State Regulations

(1) California Noise Control Act

Sections 46000 to 46080 of the California Health and Safety Code codify the California Noise Control Act of 1973. The Act established the Office of Noise Control under the California Department of Health Services. It requires that the Office of Noise Control adopt, in coordination with the California Office of Planning and Research (OPR), guidelines for the preparation and content of noise elements for general plans. The most recent guidelines are contained in the OPR's General Plan Guidelines.³ The document provides land use compatibility guidelines for cities and counties to use in general plans to reduce conflicts between land use and noise. The City has adopted a modified version of the State's land use compatibility guidelines, as discussed below.

(2) California Building Standards Code

The 2019 California Building Standards Code specifies interior noise levels attributable to exterior noise sources for both residential and nonresidential uses during operation. Specifically, it specifies that interior noise levels attributable to exterior sources shall not exceed 45 dBA in any habitable room (e.g., residential homes for living, sleeping, eating, or cooking).⁴ The noise metric used (either L_{dn} or CNEL) must be consistent with the noise element of the local general plan.⁵ The 2019 California Building Standards Code also specifies that buildings containing non-residential uses (e.g., retail spaces and offices) that are exposed to exterior noise levels at or above 65 dBA L_{eq} or CNEL must maintain interior noise levels below 50 dBA L_{eq} in occupied areas during any hour of operation.⁶ The buildings are required to comply with this interior sound level by either a prescriptive or performance method. A prescriptive method requires the use of building assemblies and components with appropriate Sound Transmission Class (STC) values and Outdoor-Indoor Sound Transmissions Class (OITC) values. A performance method requires an acoustical analysis documenting compliance with this interior sound level, to be prepared by personnel approved by the architect or engineer of record before the building is built.

³ California Office of Planning and Research (OPR), 2017. State of California General Plan Guidelines.

⁴ Habitable space is a space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

⁵ California Code of Regulations (CCR), Title 24, Part 2, Volume 1, Section 1206.4.

⁶ California Code of Regulations (CCR), Title 24, Part 11, Section 5.507.

b. Local Regulations

(1) Saratoga General Plan

The Saratoga General Plan includes the following relevant policies and implementation measures (IMs) that assist in reducing or avoiding potential impacts related to noise and vibration.

Land Use Element

Policy LU-5.1: Prior to approval, the decision making body shall consider the cumulative traffic impacts of single-family residential projects of 4 or more lots, multi-family residential projects of eight or more units, and commercial projects designed for an occupancy load of more than 30 persons. This may be accomplished through the completion of traffic impact analyses prepared by qualified traffic engineers or transportation planners.

Policy LU-5.2: Development proposals shall be evaluated against City standards and guidelines to assure that the related traffic, noise, light, appearance, and intensity of the proposed use have limited adverse impact on the area and can be fully mitigated.

Policy LU-5.3: The capacity of existing streets shall be recognized prior to tentative building site or subdivision approval of any project. New development shall be designed to minimize disruption to the area caused by an increase in through or heavy traffic.

Policy LU-5.4: Through the development review process, ensure that adjoining neighborhoods are protected from noise, light, glare and other impacts resulting from new or expanded non-residential developments.

IM LU-5.a: Through the design review and subdivision review process require that all major development projects include traffic and environmental review to ensure adherence with Neighborhood Protection Goals and Policies.

Noise Element

Policy NOI-2.1: An acoustical analysis is to be conducted for proposed Residential and Quasi Public development where the existing noise level exceeds Outdoor DNL 60 dB to determine measures needed to reduce noise impacts to meet City noise standards.

Policy NOI-2.2: New residential development shall be designed and constructed to provide an interior noise level of DNL 45 dB or less in habitable rooms (due to outdoor sources).

Policy NOI-2.3: Residential outdoor open space intended for use and enjoyment shall be designed to meet Outdoor DNL 60 dB. This policy does not apply to private exterior

balconies. Where this level cannot feasibly be met by incorporating reasonable measures, such as strategic site layout and noise barriers, DNL 65 dB may be approved.

Policy NOI-2.4: New office/commercial development shall be designed and constructed to reduce daytime interior noise levels in accordance with State CALGreen standards prescribing an interior noise level standard of $L_{eq}(h)$ 50 dB as the maximum allowable hourly average noise level during any hour of operation.

Policy NOI-2.5: Parks and recreational areas should be protected from excessive noise to permit the enjoyment of sports and other leisure time activities. Parks and other recreational areas which are impacted by outside noise sources should be provided with noise protection devices, including barriers and landscaping. Park design should locate passive recreation areas away from noise sources.

IM NOI-2.6.1: Update City Noise Control Ordinance to specifically address sources that would have an impact on the community, such as noise generated by equipment, animals and amplified sound.

Policy NOI-2.7: Noise generated by equipment, animals and amplified sound shall meet adopted standards as amended from time to time.

IM NOI-2.7.1: The City should continue to enforce the restrictions in the Noise Ordinance of the Saratoga City Code.

Policy NOI-2.8: The City shall enforce regulations pertaining to home occupations and not permit those that create noise beyond the property boundaries.

Policy NOI-3.1: Changes in use and development shall be reviewed for noise impacts to neighboring land uses.

Policy NOI-3.2: New development shall be required to utilize appropriate measures to reduce noise impacts to the adopted noise standards; and acoustical analysis may be required by the approving authority.

Policy NOI-4.1: The City should work with other agencies to mitigate the effect of existing and future transportation noise sources.

Policy NOI-4.2: The City should consider the implementation of alternative transportation methods in order to reduce cumulative traffic levels and noise generation.

IM NOI-4.2.1: The City should continue traffic reduction programs outlined in the goals, policies, and implementation actions in the Circulation Element.

Policy NOI-4.3: The City should design new or improved roads in Saratoga with careful consideration given to both long and short term noise impacts.

IM NOI-4.3.1: Noise abatement measures should be considered in the design of new and improved roadways.

Policy NOI-4.4: The City should discourage through traffic in residential neighborhoods to reduce noise impacts.

Policy NOI-4.5: The City should continue to designate truck routes in order to direct truck traffic away from noise sensitive land uses.

Policy NOI-4.6: Municipal speed limits and State of California Vehicle Code noise regulations are intended to reduce traffic noise in the City.

IM NOI-4.6.1: The City should continue to coordinate enforcement of speed limits and State regulations related to vehicles that generate unacceptable noise.

(2) Saratoga Municipal Code

The following standards from the City of Saratoga Code of Ordinance Article 7-30 Noise Control are related to noise and are applicable to the project.

7-30.040 – Noise standards.

(a) Except as otherwise provided in Paragraph (b) of this Section, all uses and developments shall comply with the following noise standards for the various land uses and times of day as indicated below. No person shall cause, produce, or allow to be produced any noise that exceeds these noise standards at any point outside the property boundary on which the noise is generated.

TABLE IV.J-4 MAXIMUM PERMISSIBLE OUTDOOR NOISE LEVELS GENERATED (DBA)

Land Use	Daytime (7:00 AM to 7:00 PM)		Evening (7:00 PM to 10:00 PM)		Nighttime (10:00 PM to 7:00 AM)	
	Average	Maximum	Average	Maximum	Average	Maximum
	L _{eq}	L _{max}	L _{eq}	L _{max}	L _{eq}	L _{max}
Residential (Single- and Multi-Family)	55	65	45	55	40	50
Open Space/Parks	60	70	50	55	45	50
Commercial/Office	65	75	60	70	55	60
Public and Quasi-Public Facilities	60	70	55	60	45	50

Source: Saratoga Municipal Code, 7-30.040.

(b) Subject noise levels shall be measured with a sound level meter as follows: (1) Noise originating upon a particular site shall be measured at any point outside of the property boundary for that site at least four feet above the ground/floor and at least four feet away from any wall or similar large acoustically reflective surface if any is located on the site receiving the noise generated. (2) Noise shall be measured with a Class I or II sound level meter set utilizing the "A" Weighting scale and the "slow" meter response. (3) Minimum measurement time shall be three minutes. (4) With respect to noise originating from a dwelling unit constituting part of a multi-family development, the measurement can be taken at any point beyond the exterior walls of such unit or at any point within the habitable interior of another dwelling unit located on the same site.

7-30.051 – Leaf blowers. The use of any leaf blower other than a certified leaf blower, as defined by this article, is prohibited.

7-30.060 – Exceptions for specific activities. Specific activities shall be permitted to exceed the standards set forth in Section 7-30.040 under the following conditions:

(a) **Construction activities.** Construction, alteration, repair, and grading activities shall not exceed 100 dBA measured at any point 25 feet or more from the source of noise. Such activities may be conducted between the hours of 7:30 A.M. and 6:00 P.M. Monday through Friday and between the hours of 9:00 A.M. and 5:00 P.M. on Saturday. Construction activities shall be prohibited on Sundays and weekday holidays, with the exception of the following:

(i) Residential construction activities that do not require a City permit, or which are authorized by a valid City permit and do not exceed fifty percent of the existing main or accessory structure, may be conducted between the hours of 9:00 A.M. and 5:00 P.M. on Sundays and weekday holidays.

(b) Certified leaf blowers may be used or operated Monday through Friday between 8:00 A.M. and 5:00 P.M., on Saturdays between 10:00 A.M. and 5:00 P.M., and may not be used on Sundays.

(c) **[Community uses and events.]** Non-amplified noise from community uses and events that are inherent to a suburban environment, including but not limited to playgrounds, sports facilities and fields, and common recreational areas.

7-30.080 – Authority to require noise study. As a condition for the granting of any license, permit or development approval, the Director or approving authority may require the preparation of a noise (acoustical) study to determine whether the proposed activity will comply with the noise standards contained in this Article. Furthermore, a noise (acoustical) study shall be required where the existing noise level exceeds outdoor DNL 60 dB to determine measures needed to reduce noise impacts to meet City noise standards. The cost of such study shall be paid, in advance, by the applicant. If the study predicts that any of the

noise standards will be violated, the approving authority may require implementation of mitigation measures to reduce the noise impacts, and may further require the conduct of additional studies after the activity is commenced to determine the effectiveness of the mitigation measures. If the violation cannot be prevented or corrected through mitigation measures, the approving authority may deny or revoke the license, permit or development approval.

3. Impacts and Mitigation Measures

This section analyzes environmental impacts related to noise that could result from the implementation of the project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project.

The noise related policies, actions, and implementation measures for the proposed project are essentially the same as previous existing policies, actions, and implementation measures in the General Plan; therefore, no noise related impacts from updating the policies, actions, or implementation measures of the General Plan would occur.

a. Significance Criteria

In accordance with Appendix G of the CEQA guidelines, implementation of the project would result in a significant impact related to noise and vibration if it would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

b. Analysis Approach

The following sections provide an evaluation and analysis of the potential impacts for the planning area for each of the criteria of significance listed above and potential cumulative impacts.

In accordance with Municipal Code Article 7-30 Noise Control, an individual residential development under the project would result in a potentially significant impact if it would cause a

new exceedance of the City of Saratoga noise standards. In areas where the existing outdoor noise level exceeds DNL 60 dB, an audible increase of 3.0 dBA or more from individual development under the project is considered a potentially significant impact in this EIR based on the outdoor DNL noise standards established in both the General Plan and Municipal Code.

The City of Saratoga has not adopted criteria for construction groundborne vibration impacts. In this EIR, the Federal Transit Administration (FTA) vibration impact criteria are used to evaluate potential vibration impacts associated with the implementation of the project. Table IV.J-5 and Table IV.J-6 summarize the vibration criteria established by the FTA to prevent disturbances to building occupants and to prevent damage to structures, respectively. Vibration impacts from future residential developments under the project would be considered potentially significant if they would exceed the FTA's recommended vibration thresholds to prevent disturbance of building occupants or damage to buildings.

TABLE IV.J-5 VIBRATION CRITERIA TO PREVENT DISTURBANCE – RMS (VDB)

Land Use Category	Frequent Events^a	Occasional Events^b	Infrequent Events^c
Buildings where vibration would interfere with interior operations	65	65	65
Residences and buildings where people normally sleep	72	75	80
Institutional land uses with primarily daytime use	75	78	83

^a More than 70 vibration events of the same kind per day or vibration generated by a long freight train.

^b Between 30 and 70 vibration events of the same kind per day.

^c Fewer than 30 vibration events of the same kind per day.

Source: Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

TABLE IV.J-6 VIBRATION CRITERIA TO PREVENT DAMAGE TO STRUCTURES – PPV (IN/SEC)

Building Category	Peak Particle Velocity
Reinforced-concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Source: Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

c. Analysis and Findings

(1) Substantial Temporary or Permanent Increase in Ambient Noise Levels (Criterion 1)

Construction Phase (Temporary)

Construction noise levels would vary from day to day depending on the quantity, type, and condition of the equipment being used; the type and duration of activity being performed; the distance between the noise source and the receptor; and the presence or absence of barriers, if any, between the noise source and receptor. Demolition, excavation/grading, and foundation work are typically the noisiest phases of construction and would occur during the initial construction phases. The later phases of construction include activities that are typically quieter and occur within the building(s) being constructed, thereby providing a noise barrier between the construction activity and any nearby receptors. Pile driving may also be required for some projects, which can generate extreme levels of noise.

The City of Saratoga's Municipal Code limits the days and hours of construction equipment operation to avoid generating noise when it would be most objectionable to neighboring receptors. This requirement would prevent the disturbance of nighttime sleep for nearby residences. However, daytime construction activities could still generate noise levels at nearby receptors that exceed the City's standards established in the Municipal Code.

Typical noise levels at 50 feet from construction equipment are shown in Table IV.J-7. As discussed above, noise levels at a known distance from point sources are increased by 6 dBA and 7.5 dBA for every halving of that distance for hard and soft surfaces, respectively. According to Table IV.J-7, certain construction activities, such as pile driving (impact or sonic) and rock drilling, could generate exterior noise levels that exceed the construction noise standard established in the City's Municipal Code (100 dBA at 25 feet).

Impact NOISE-1: Construction of residential development under the project could generate a substantial temporary increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (S)

To address construction noise impacts from future residential development, the following mitigation should be implemented:

TABLE IV.J-7 TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Type of Equipment	Maximum Sound Levels (dBA at 50 feet)
Pile Drivers (Impact)	101
Pile Drive (Sonic)	95
Rock Drill	95
Rail Saw	90
Crane, Derrick	88
Crane, Mobile	83
Jackhammer	88
Grader	85
Roller	85
Paver	85
Dozer	85
Concrete Mixer	85
Scraper	85
Pneumatic Tool	85
Truck	84
Concrete Pump	82
Compactor	82
Generator	82
Air Compressor	80
Backhoe	80
Loader	80

Source: Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. September.

Mitigation Measure NOISE-1: Construction Noise Controls. The following noise control measures shall be included as conditions of approval for development adjacent to occupied noise sensitive land uses that involve any extreme noise generating construction activities (e.g., pile driving [impact or sonic], rock drilling, and/or other activities generating greater than 100 dBA at 25 feet):

- (a) **Construction Noise Management Plan.** Prior to approval of construction-related permits, the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant that contains a set of site-specific noise attenuation measures to reduce construction noise levels for City review and approval. The project contractor(s)

shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:

- Erect temporary plywood noise barriers between the equipment and adjacent residential buildings;
- Implement “quiet” pile driving technology (e.g., silent pile driver or pre-drilling), where feasible in consideration of geotechnical and structural requirements and conditions;
- Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible.

(b) **Public Notification.** Property owners and occupants adjacent to project sites shall be notified in advance by writing of the proposed construction schedule before construction activities commence.

(c) **Noise Disturbance Coordinator.** The project applicant shall designate a “noise disturbance coordinator” responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall ensure that reasonable measures are implemented to correct the problem (e.g., potentially including erection of a temporary noise barrier/wall). A telephone number for the disturbance coordinator shall be posted at the construction site. (LTS)

Implementation of the Mitigation Measure NOISE-1 would ensure that temporary noise impacts from construction of individual residential developments under the project would be less than significant.

Operational Phase (Long-Term)

The primary operation period noise generation sources from future residential development under the project would include increased vehicular traffic on roadways and the introduction of new stationary sources such as heating, ventilation, and air conditioning (HVAC) systems and emergency backup generators.

Stationary Sources

Noise generated from stationary sources would be subject to City of Saratoga Municipal Code Section 7-30.040 Noise Standards, which requires all uses and developments to not produce any noise that exceeds the noise standards summarized in Table IV.J-4 at any point outside the property boundary on which the noise is generated. General Plan Policy NOI-3.2 requires new

development to utilize appropriate measures to reduce noise impacts to the adopted noise standards; and acoustical analysis may be required by the approving authority.

Traffic noise contour maps are provided in the City of Saratoga Updated Noise Element of the General Plan.⁷ For residential developments in areas exceeding Outdoor DNL 60 dBA, General Plan Policy NOI-2.1 and City of Saratoga Municipal Code Section 7-30.080 require an acoustical analysis to be conducted to determine measures needed to reduce noise impacts to meet City noise standards. If the study predicts that any of the noise standards will be violated, implementation of mitigation measures may be required by the approving authority to reduce the noise impacts, and additional studies after the activity is commenced may be required to determine the effectiveness of the mitigation measures. The future residential development under the project includes non-vacant and vacant sites. For vacant sites, besides the General Plan Policies and Municipal Code sections mentioned above, General Plan Policy NOI-3.1 requires changes in use and development to be reviewed for noise impacts to neighboring land uses.

Compliance with the Municipal Code Sections 7-30.040 and 7-30.080, and General Plan policies NOI-2.1 and NOI-3.2 mentioned above would ensure that future housing development under the project would not result in a substantial permanent increase in ambient noise levels from stationary sources, and this impact would be less than significant.

Vehicle Traffic

As discussed under *General Information on Noise* above, a project would need to double the existing traffic volume on a roadway to increase the ambient noise level by approximately 3 dBA. The city's existing (2019) average daily traffic volumes on key roadway segments range from about 3,400 to 36,000 vehicles per day.⁸ As presented in Table IV.J-3, these traffic volumes generate outdoor DNL noise levels ranging from about 60 to 72 dBA at 50 feet from the roadways. Therefore, at the minimum, an increase of about 3,400 vehicles per day would be required to result in a 3 dBA increase in ambient noise levels along the key roadway segments in the planning area. The maximum net daily vehicle trips that would be generated by a proposed residential development under the project is about 1,500 (the Saratoga Avenue Housing Site);⁹ therefore, future residential development is not expected to generate traffic that would create an audible (3.0 dBA) increase in noise in areas exposed to existing traffic noise levels exceeding 60 dBA DNL. Therefore, future residential development under the project would not result in a substantial permanent increase in ambient noise levels from project-generated traffic trips, and this impact would be less than significant.

⁷ Charles M. Salter Associates, Inc, 2014. City of Saratoga Updated Noise Element of the General Plan, March 5.

⁸ Illingworth & Rodkin, Inc., 2019. General Plan Update and EIR, Saratoga, CA –Traffic Noise Modeling Results for 2040, March 14.

⁹ Appendix D, Intersection Level of Service Analysis for the Saratoga Housing Element Update.

(2) Groundborne Vibration (Criterion 2)

Construction Phase

Construction activities can result in varying degrees of ground vibration, depending on the equipment, activity, and relative proximity to sensitive receptors. Typical vibration levels for construction equipment at a distance of 25 feet are shown in Table IV.J-8 below.

TABLE IV.J-8 VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 Feet, In/Sec	RMS at 25 Feet, VdB
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.17	93
Vibratory Roller	0.21	94
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: Federal Transit Authority (FTA), 2018.

As indicated in Table IV.J-8, construction activities could generate groundborne vibration that exceeds the criteria established by the FTA (Table IV.J-5 and Table IV.J-6) at vibration-sensitive receptors. A typical impact pile driver would generate the highest levels of vibration. Under a worst-case scenario for typical conditions, an impact pile diver could result in the following impacts to vibration-sensitive receptors:

- Potential disturbance to vibration-sensitive activities within about 500 feet (based on the most conservative threshold of 65 VdB as presented in Table IV.J-5);¹⁰ and

¹⁰ The buffer distance was calculated based on the following equation:

$$D_2 = D_1 * 10^{((RMS_1 - RMS_2) / 30)}$$

Where:

RMS₁ is the reference vibration level at reference distance, and RMS₂ is the vibration threshold for vibration-sensitive activities

D₁ is the reference distance (in this case 25 feet), and D₂ is the buffer distance to vibration threshold for vibration-sensitive activities.

- Potential damage to structures within about 115 feet (based on the most conservative threshold of 0.12 in/sec for extremely fragile historic buildings as presented in Table IV.J-6).¹¹

If sensitive receptors are located within these worst-case screening distances, future residential developments under the project could generate excessive vibration levels.

Impact NOISE-2: Construction of residential development under the project could generate excessive groundborne vibration levels. (S)

Mitigation Measure NOISE-2: Vibration Analysis. Where new development is proposed in the vicinity of vibration-sensitive receptors, such as older masonry structures, people (especially residents, the elderly, and sick), and vibration-sensitive equipment. require a screening level vibration analysis. If a screening level analysis shows that the project has the potential to substantially disturb vibration-sensitive activities or result in vibration damage to structures, require a detailed vibration impact assessment prepared by a qualified professional to determine appropriate design standards and methods of construction to avoid potential vibration impacts, if feasible. (LTS)

Implementation of Mitigation Measure NOISE-2 would ensure that construction of future residential development under the project would not generate excessive groundborne vibration levels, and this impact would be less than significant.

Operation Phase

Future development under the project will be residential. This land use does not involve equipment or activities that generate excessive groundborne vibration or groundborne noise levels. Therefore, operation of future developments under the project would not generate excessive groundborne vibration or groundborne noise levels, and this impact would be less than significant.

(3) Aircraft Noise (Criterion 3)

The City of Saratoga is located approximately 8.5 miles south of Moffett Federal Airfield, and approximately 6 miles southwest of Norman Y. Mineta San Jose International Airport. Because

¹¹ The buffer distance was calculated based on the following equation:

$$D_2 = (PPV_1 / PPV_2)^{(1 / 1.1)} * D_1$$

Where:

PPV₁ is the reference vibration level at reference distances, and PPV₂ is the vibration threshold for building damage.

D₁ is the reference distance (in this case 25 feet), and D₂ is the buffer distance to vibration threshold for building damage.

the planning area is not located within the area governed by an airport land use plan and is not within 2 miles of a public-use airport, the project would have no impact related to the exposure of people to excess noise levels from public-use airports.

The planning area is not located within the vicinity of a private airstrip. Therefore, the project would have no impact related to the exposure of people to excess noise levels from private airstrips.

d. Cumulative Noise Impacts

Noise and vibration dissipate with increased distance from the source and therefore, cumulative noise and vibration impacts would not be expected unless new sources of noise are located in close proximity to each other. The impacts from construction noise and vibration for development under the project would be reduced to less-than-significant levels with implementation of the General Plan policies, the City's Municipal Code, and Mitigation Measures NOISE-1 and NOISE-2, as discussed above.

Developments in areas surrounding the planning area, such as the El Paseo and 1777 Saratoga Ave Mixed Use Village project (about 285 feet from the closest future development under the project) and the Costco Westgate project (about 350 feet from the closest future development under the project) were considered in this cumulative impact analysis. All projects would be subject to applicable construction noise and vibration policies and applicable mitigation measures. If construction of the cumulative projects were to occur concurrently with the closest future developments under the project, which is the worst-case scenario, the cumulative projects would generate noise levels up to 80 dBA¹² at 25 feet from the closest future developments under the project. These noise levels would be about 20 dBA lower than the City of Saratoga's 100 dBA threshold, and hence the contribution from the cumulative projects to the overall noise level at the future developments under the project would be negligible.

With regard to the potential for construction vibration to cause damage, as discussed above, vibration dissipates with increased distance from the source. Because the cumulative projects would be located more than 285 feet away from the closest future development under the project, concurrent development with the future development under the project would not generate substantial vibration at the same building. Therefore, the potential cumulative impact related to project construction noise and vibration would be reduced to less-than-significant levels with implementation of the General Plan policies, the City's Municipal Code, and Mitigation Measures NOISE-1 and NOISE-2, as discussed above.

¹² It is conservatively assumed that the cumulative projects would generate 100 dBA at 25 feet from the project sites.

The noise impacts from operation of residential developments under the project would be reduced to a less-than-significant level with the implementation of the City's General Plan policies and the City's Municipal Code related to noise. Therefore, the project's contribution to potential significant cumulative noise increases from traffic and stationary sources is less than cumulatively considerable.

K. PARKS AND RECREATION

This section considers the project's potential to impact city parks and recreational facilities, county parks, regional parks, and open space areas. It includes an overview of the existing parks, recreational facilities, and open space areas and identifies specific potential impacts from implementation of the project.

1. Existing Setting

Parks and open spaces are integral to Saratoga's character, exemplified by the City's 15 parks and recreational facilities within its boundary.¹ Existing facilities range in size from community playgrounds to 64 acres of maintained open space. Parks and open space resources within and adjacent to the planning area are shown in Figure IV.K-1.

Park and recreational facilities are overseen by the City of Saratoga Public Works Department, the Midpeninsula Regional Open Space District (MROSD), Santa Clara County Department of Parks and Recreation, and private organizations.

a. Regional Parks

Regional parks provide an additional source of parklands for the community (see Figure IV.K-1). There are several regional parks located partially within or immediately adjacent to the boundaries of the planning area. These parks include Upper Stevens Creek Park, Sanborn Skyline County Park, and Fremont Older Open Space Preserve and total approximately 3,809 acres. Other regional park and open space preserves are located outside of the planning area.

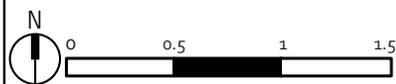
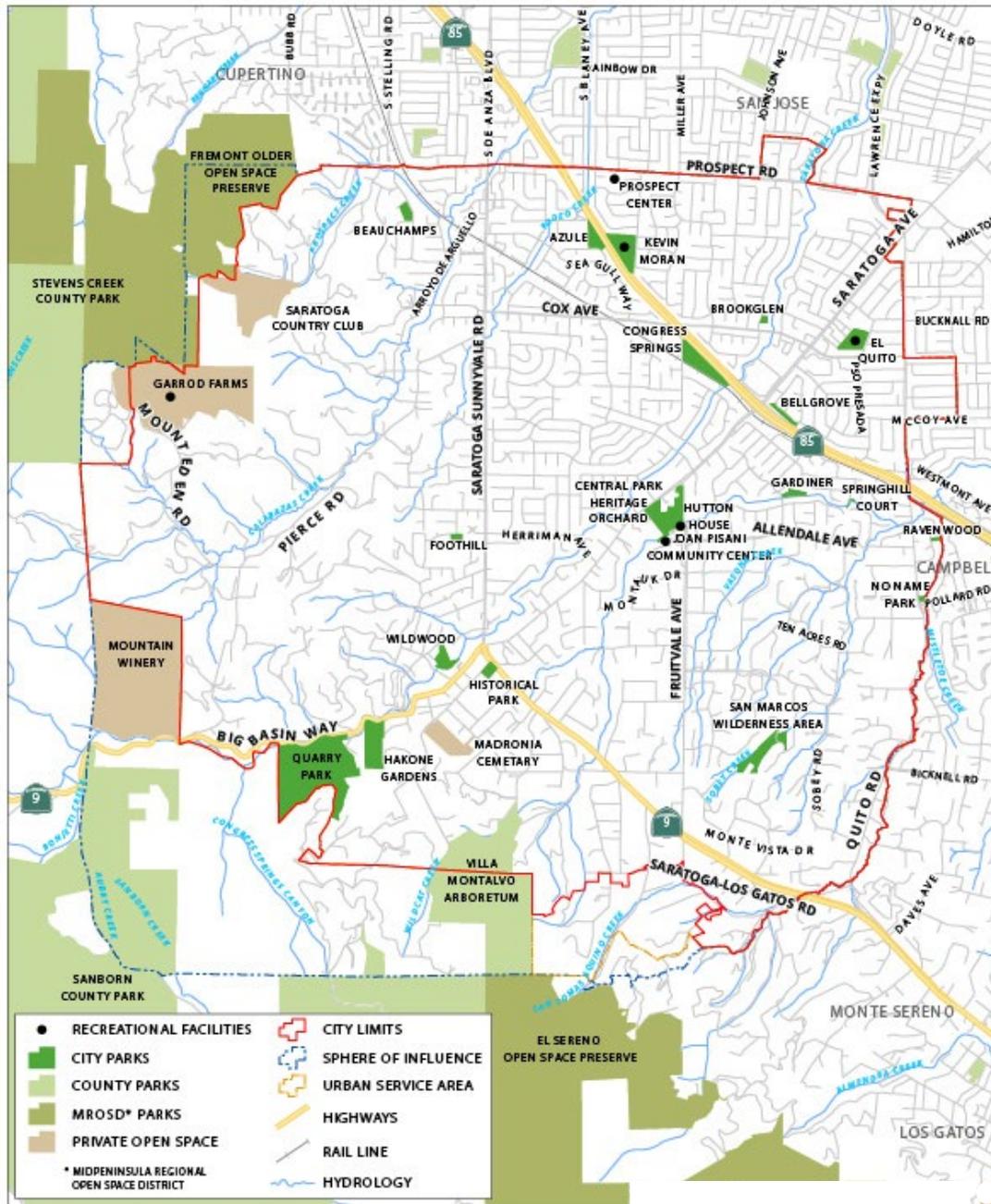
(1) Upper Stevens Creek Park

Upper Stevens Creek Park is a multiple purpose park in the Cupertino Sphere of Influence. It is accessible to Saratoga residents by trail and scenic road. The 655-acre park contains a 92-acre, non-power boating reservoir, picnic areas, over 12 miles of single track and multi-use trails which connect with the Midpeninsula Open Space Fremont Older Preserve, and a public archery range.

(2) Sanborn County Park

Located less than one mile west of Saratoga Quarry Park, Sanborn County Park is a part of the larger regional Skyline Park. The Saratoga to the Skyline trail will connect Saratoga Quarry Park to Skyline Park that contains approximately 1,000 acres and extends from Sanborn Park to Skyline Boulevard. It is one of a series of multiple-purpose recreation areas with trails that

¹ City of Saratoga, 2022. Park Information. Available at: <https://www.saratoga.ca.us/222/Park-Information>, accessed August 22, 2022.



Miles Source: City of Saratoga; Santa Clara County; M Group 2018

Figure IV.K-1
Parks and Recreation Facilities

connect to Castle Rock State Park and create an undisturbed corridor along the scenic mountain highway. These trails are part of an even more extensive trail system that links the Santa Clara and San Lorenzo valleys with Castle Rock State Park, Big Basin Redwoods State Park, and the Skyline-to-the-Sea Pacific Coast trail.

(3) Fremont Older Open Space

Fremont Older Open Space is a 739-acre preserve owned and managed by the MROSD. It is located on the urban fringe and extends to Upper Stevens Creek Park to the north and west. This open space resource offers a variety of experiences to hikers, bicyclists, and equestrians. Approximately 145 acres of Fremont Older Open Space is located within the planning area. Though the remainder of the park is outside of the planning area, this Open Space Preserve is close by and easily accessible by city residents.

b. Citywide, Neighborhood, and Specialty Parks

The Public Works Parks Division oversees the care and maintenance of approximately 189 acres of parkland.² City parks are generally well-distributed throughout the community. Figure IV.K-1 identifies city parks and recreational facilities within the planning area.

c. Privately Owned Open Space and Parkland

Private open space land includes privately held properties with established open space uses such as the Saratoga Country Club, Garrod Farms, Mountain Winery, Madronia Cemetery, and Villa Montalvo (see Figure IV.K-1). The Madronia Cemetery is maintained by the Saratoga Cemetery District. Villa Montalvo is operated in trust by the Montalvo Arts Center with Santa Clara County Parks maintaining the trail lands.³

d. Trails

Over the years, the City has encouraged the dedication of a comprehensive and interconnected system of multi-use trails in the community that links to the regional, county-wide trail system. The trails allow a range of non-motorized transport including bicycling, hiking, walking, jogging, and equestrian uses. Development of the trail system in Saratoga is guided by the 1974 Trails Master Plan that was updated by the City in 1991 as part of the Parks and Trails Master Plan. This plan was coordinated to complement the existing County Trails and Pathways Master Plan. The City of Saratoga currently owns and maintains 18 linear miles of trails and has 19 linear miles of

² City of Saratoga, 2022. Park Information. Available at: <https://www.saratoga.ca.us/222/Park-Information>, accessed August 22, 2022.

³ Santa Clara County Parks, 2022. Villa Montalvo Brochure. Available at: https://parks.sccgov.org/sites/gj/files/exjcpbg61/files/documents/Villa%20Montalvo%20Brochure%20Cover_o.pdf, accessed August 22, 2022.

proposed trails for future development. The Saratoga Quarry is the City's newest park which has two miles of unpaved trails. The Saratoga Quarry was developed in partnership with the MROSD and the County of Santa Clara. Other regional parks and trails in Saratoga include Fremont Older Open Space and Sanborn County Park but are owned and maintained by the MROSD and the County of Santa Clara, respectively. Existing trails within the planning area can be found on Figure IV.K-2.

e. Open Space Linkages

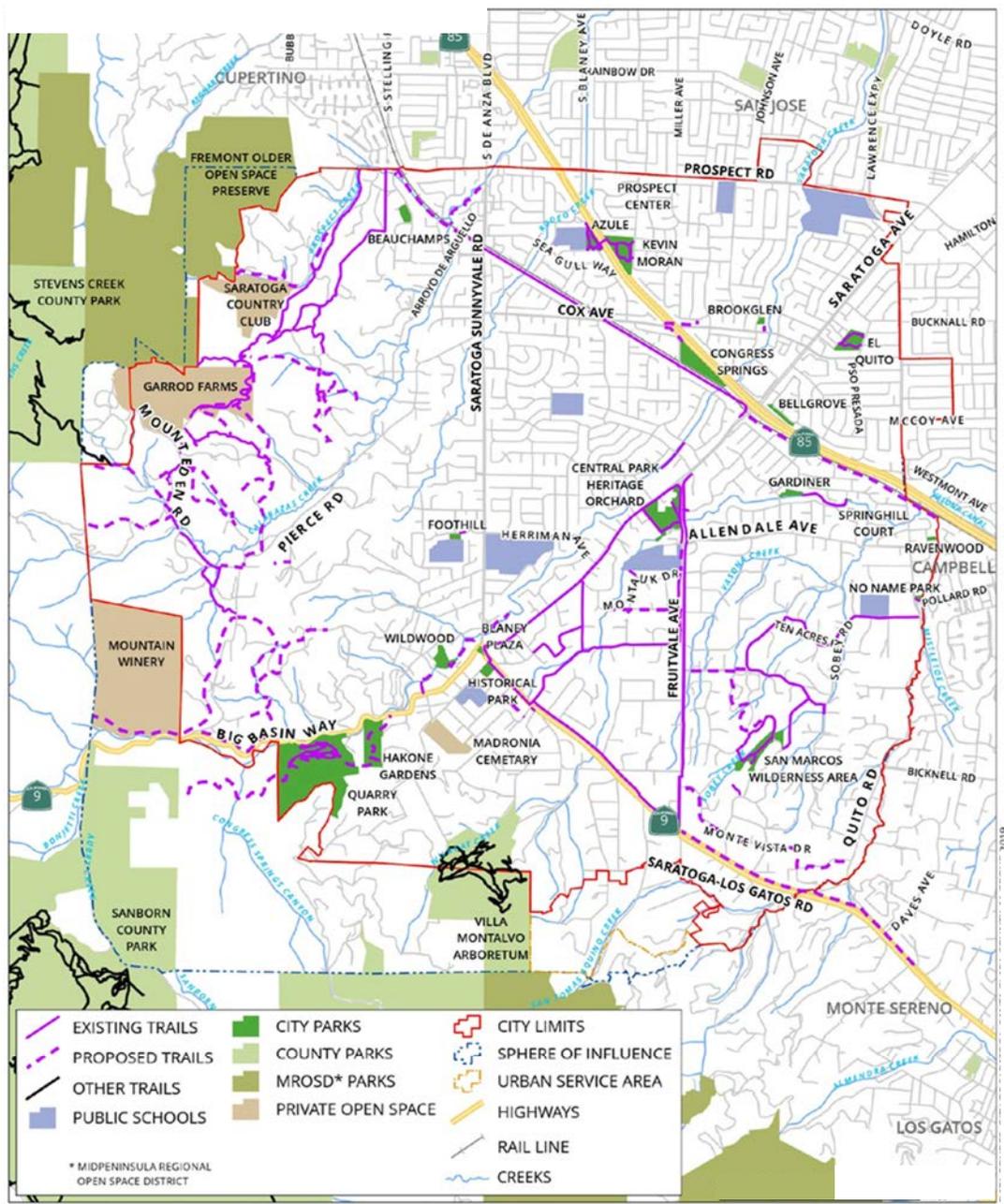
Saratoga's existing open spaces and parkland are currently spread throughout the valley areas and the hillsides. However, the continuity of open spaces and connections through trail systems are important to enhance the scenic value, provide public access, maintain existing wildlife corridors, and ensure the enjoyment of the open space system. Especially important is the connection of public facilities and parkland through a multi-use trail system.

An example of these linkages is the Parker Ranch Loop, a segment of trail that connects Saratoga to the Fremont Older Open Space and which has a common boundary with Upper Stevens Creek Park's eastern boundary. The City is planning a trail that would link Saratoga trails to the County trail coming out of Stevens Creek County Park into the Mount Eden Valley. Major portions of this trail are complete. However, there are portions within the Mount Eden Valley that still need to be completed.

The City is also helping with the Saratoga-to-the-Sea Trail that would originate with a trailhead from Quarry Park and connect Saratoga to roads and trails through Sanborn County Park to the Skyline-to-the-Sea Trail. The Skyline-to-the-Sea trail begins at the Saratoga Gap on the crest of the Santa Cruz Mountains, winds through redwood forests into Castle Rock State Park, and down into Big Basin State Park. The trail terminates 34 miles from the mountain ridge at Waddell State Beach on the Pacific Ocean. The total trail length from Saratoga to the Pacific Ocean is approximately 50 miles.

f. Other Recreational Facilities

Other public recreational facilities within the planning area are shown in Figure IV.K-1. These facilities include the Joan Pisani Community Center, the Prospect Center, the Warner Hutton House, the Kevin Moran Park Tennis and Basketball Courts, and El Quito Park soccer field. These locations facilitate City-sponsored events and recreational events throughout the year. This category includes 99 acres within the city limits and 134 acres in the planning area.



2019



Source: City of Saratoga; Santa Clara County; M Group 2019

Figure IV.K-2
Existing and Proposed Trails

(1) Villa Montalvo Arts Center

Located in the hills straddling the southern border of the City Villa Montalvo includes 175 acres of woodland. The majority of this open space is located within the County of Santa Clara unincorporated area but is partially located within Saratoga and is entirely within the Sphere of Influence. The land is operated in trust by the Montalvo Arts Center and the open space areas are leased to the County on a long-term basis. The site contains an arboretum, art installations, hiking trails and recreational open space areas. The Center provides art and music programs, community classes and children's day-camps. The Center also runs the Sally and Don Lucas Artists in Residency Program that offers artists from a range of disciplines the opportunity to pursue their work and live temporarily in artists cottages on the park grounds. The park and trails are maintained by the Santa Clara County Parks Department.

2. Regulatory Setting

a. State

(1) Quimby Act (California Government Code Section 66477)

California Government Code Section 66477, within the Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The dedication of land or in-lieu fees may be required for land or condominium subdivisions. The dedication of land or in-lieu fees is not to exceed the proportionate amount necessary to provide 3 acres of neighborhood and community parkland per 1,000 persons. Dedication requirements may be increased if the existing ratio of parkland per 1,000 persons at the time of adoption of a City's local park and land dedication, and fees collected pursuant to the Quimby Act may only be used for developing new or rehabilitating existing park or recreational facilities.

The Quimby Act requires a City or County to adopt standards for recreational facilities in its General Plan to adopt a parkland dedication or fee ordinance.

b. Regional

(1) Midpeninsula Regional Open Space District

MROSD is a non-enterprise special district that serves parts of Santa Clara, San Mateo, and Santa Cruz counties to form a continuous greenbelt of permanently preserved open space by linking public parklands. As a member of Bay Area Open Space Council, the MROSD participates in cooperative efforts, including Bay Trail, Ridge Trail, and Skyline-to-the-Sea Trail, which are regional Bay Area trails running across the district's jurisdiction. The MROSD's basic policy document includes goals and policies that relate to open space land preservation and

management, inter-agency relationships, and public involvement. Lands under MROSD's jurisdiction in Saratoga exist only in the sphere of influence and are designed for low-intensity use to give long-term protection from encroaching urbanization. These lands are acquired according to four principal criteria: scenic preservation, preservation of unique sites, the guidance of urban form, and low intensity recreational opportunities. Most of the MROSD parks are located along both sides of State Route 35, which is a north-south route spanning the counties of San Mateo, Santa Cruz, and Santa Clara. The closest MROSD parks to Saratoga are the Fremont Older and El Sereno Open Space Preserves, which are located just north and south of the planning area, respectively.

(2) Santa Clara County Parks and Recreation Department

The Santa Clara County Parks operates on a voter-approved measure in which a fixed portion of the property taxes collected are set aside from the General Fund to acquire and develop a regional park system. The program emphasizes completing Upper Stevens Creek Park, located in Stevens Creek County Park at 11401 Stevens Canyon Road, and its connection to Stevens Creek. Because the upper portions of Steven's Creek are environmentally sensitive, the Department has committed to purchasing land that would connect these two parks. District facilities that serve Saratoga include the trails at Villa Montalvo, Sanborn County Park, and the Stevens Creek County Park.

c. Local

(1) Saratoga General Plan

The existing Saratoga General Plan includes the following policies and implementation measures (IM) that assist in protecting parks and recreational facilities:

Open Space and Conservation Element

Policy OSC-3.1: Ensure that existing and future parks and dedicated open spaces remain part of the public domain in perpetuity.

Policy OSC-3.2: Preserve open space and recreational resources provided on school sites and surplus school sites through joint use agreements, acquisition, and/or land use controls.

Policy OSC-3.3: Promote retention and dedication of land which provides for a variety of passive and active recreational pursuits for people of all ages and offers important opportunities for our diverse community to enjoy the outdoor environment, including:

- a. Areas of outstanding scenic, historic, and cultural value.
- b. Accessible areas particularly suited for hiking, horseback riding, biking, swimming, tennis, ball fields, and other recreational purposes.

- c. Areas providing access and links between major recreation, cultural, and open space areas, including parks, trails, publicly accessible easements, creeks, and scenic roadway corridors.
- d. Areas with inherent qualities that the community finds visually pleasing, beautiful, relaxing, stimulating, or enjoyable.

Policy OSC-4.1: Promote dedication of land for parks and recreational open space.

IM OSC-4.a: The City shall continue to encourage permanent dedication of recreational and open spaces through the subdivision entitlement process and other means.

IM OSC-4.b: The City shall continue to utilize the Park In-lieu Fee Program to assist in the acquisition of parks.

Policy OSC-5.4: Trails shall be established along traditional routes whenever feasible, consistent with the Parks and Trails Master Plan, and in a manner that insures linkages to existing and proposed trails.

Policy OSC-5.7: The City shall regulate developments along designated trails in order to provide sufficient trail right-of-way and ensure that development adjacent to the corridors does not detract from the scenic and aesthetic qualities of the corridor.

IM OSC-5.a: The City shall update the Parks and Trails Master Plan on a periodic basis to ensure that it includes current information and continues to meet parks and trail development Goals and Policies.

IM OSC-5.b: The City shall continue to require dedication of trails through the development and subdivision entitlement process.

(2) City of Saratoga Municipal Code

All development within Saratoga must comply with the City of Saratoga Municipal Code. The code chapters with specific applicability to parks and recreation are in: Chapter 11: Parks and Recreation and Chapter 14: Subdivisions.

Chapter 11: Parks and Recreation

Article 11-05; Section 11-05.010 (Definitions):

For the purposes of this Chapter, the following words and phrases shall have the meanings respectively ascribed to them in this Section, unless the context or the provision clearly requires otherwise:

(b) Park means and includes all real property, including grounds, roadways, parks, playgrounds, open space reservations, recreation centers or any part or area thereof, located within the City and open to the public for either active or passive recreation, whether owned, leased or maintained by the City. The term shall include all buildings, structures and other facilities located on such real property devoted to such use, and all parks are declared to be sanctuaries for wildlife.

Chapter 14: Subdivisions

Article 14-25; Section 14-25:080 (Park and recreation dedication and fees):

(a) Purpose, application and exemptions. As a condition of each final map approval, and to be detailed in the conditions of [a] tentative map, every subdivider or owner shall be required to, and shall dedicate a portion of land or pay a fee in lieu thereof, or a combination of both at the option of the City, for the purpose of providing park or recreational facilities reasonably related to serving the development and in accord with the standards and provisions as hereafter set forth. The provisions of this Section are enacted pursuant to Section 66477 of the Government Code and are hereby found to be in accord with the Open Space and Conservation Element of the General Plan. The requirements of this section shall not apply to any of the following:

- (1) Subdivisions or sites or portions thereof for commercial or industrial uses.
- (2) Subdivisions containing less than five parcels and not used for residential purposes. However, in that event, it shall automatically be a condition of approval of a parcel or tentative map that if a building permit is requested for construction of a residential structure or structures on one or more of such parcels within four years from the date of recording the final map, the fee in lieu of dedication, as prescribed in this section, shall be paid by the owner of each such lot as a condition to the issuance of the building permit.
- (3) Any condominium project or stock cooperatives that consist of the subdivision of air space of an existing apartment building which is more than five years old when no new dwelling units are added thereto.
- (4) Such other exceptions as may hereafter be added to the Map Act.

(b) Standards and formula for land dedication. It is hereby found and determined that the public interest, convenience, health, welfare and safety require that five acres of real property for each one thousand persons residing within the City be devoted to park and recreational purposes. Where a park or recreational facility has been designated in the Open Space and Conservation Element of the General Plan or has been otherwise designated by the City Council and has been proposed to be located in whole or in part within the proposed subdivision to serve the immediate or future needs of the residents of such subdivision, the subdivider shall dedicate land within the area of such subdivision for park use. The amount of

land (expressed in acreage) required to be dedicated shall be based upon the average number of persons per household, based upon the most recent available federal census, divided by two hundred (the quotient of one thousand persons per five acres).

(c) **Fees in lieu of land dedication.** In the event there is no park or recreational facility designated as described in subsection (b), above, or in the event that the proposed subdivision contains fifty or less parcels, then the subdivider or owner shall pay a fee to the City in lieu of dedicating land, which shall be in an amount equal to the fair market value of the amount of land which would otherwise be required to be dedicated pursuant to paragraph (b) of this Section. If a condominium project, stock cooperative, or community apartment project (as defined in California Civil Code § 4105) exceeds fifty dwelling units, dedication of land may be required notwithstanding that the number of parcels may be less than fifty. "Fair market value", as used herein, shall be product of:

- (1) The estimated cost of parkland in Saratoga as determined by the City Council; and
- (2) The amount of land that would be required to be dedicated pursuant to subsection (b), above.

(d) **Use of land dedications and fees.** The land, fees or combination thereof are to be used only for the purpose of developing new or rehabilitating existing neighborhood or community park or recreational facilities to serve the subdivision. All fees collected under this Section shall be committed within five years after the payment of the fees or the issuance of building permits on one-half of the lots created by the subdivision, whichever occurs later. If the fees are not committed, they, without any deductions, shall be distributed and paid to the then record owners of the subdivision in the same proportion that the size of their lots bears to the total area of all lots within the subdivision.

(e) **Requirement of both dedication and fees.** Both dedication of a portion of land, together with the payment of fees may be required to be in accord with the following criteria:

- (1) Where only a portion of the land to be subdivided or developed is proposed in the Open Space and Conservation Element of the General Plan or otherwise by the City Council as a site for a local park or recreational area, such portion shall be dedicated for local park purposes and a fee computed pursuant to paragraph (c) of this Section shall be paid for any additional land that would have been required to be dedicated pursuant to subsection (b), above.
- (2) Where a major part of the local park or recreational area has already been acquired by the City and only a portion of land is needed from the subdivision or building site to complete such park, such remaining portion shall be dedicated and a fee computed as hereinabove set forth shall be paid in an amount equal to the value of the land which would otherwise have been required to be dedicated for the balance thereof.

Article 14-25; Section 14-25:090 (Reservations):

(a) Requirement for reservation of land. As a condition for tentative map approval, the advisory agency may require the subdivider or owner to reserve an area or areas within the subdivision or site for parks, recreational facilities, fire stations, libraries or other public uses, according to the standards and conditions set forth in this Section.

(b) Conditions. A reservation of land pursuant to this Section may be required under the following conditions:

(1) The public use for which the land is reserved is shown on the General Plan or an adopted specific plan containing policies and standards for such use and the required reservation is in accordance with such policies and standards.

(2) The reserved land is of such size and shape as to permit the balance of the property within which the reservation is located to develop in an orderly and efficient manner.

(3) The amount of land reserved will not make development of the remaining land held by the subdivider or owner economically unfeasible.

(4) The reserved land shall be in such multiples of streets, blocks or parcels as to permit an efficient division and development of the reserved land in the event it is not acquired within the prescribed time.

(c) Contract with City. At the time of final map approval, the City shall enter into a binding agreement to acquire the reserved land within two years after the completion and acceptance of all improvements, unless such period of time is extended by mutual agreement. The purchase price shall be the market value of the reserved land at the time of filing the application for tentative map approval, plus taxes against the reserved land from the date of the reservation and any other costs incurred by the subdivider or owner in the maintenance of the reserved land, including interest costs incurred on any loan covering the reserved land.

(d) Automatic termination of reservation. If the City does not enter into an agreement with the subdivider or owner as provided in subsection (c) of this Section, the reservation of the land shall automatically terminate.

(e) Other authority not limited. The authority of the City under this Section is additional to all other authority under this Chapter, or granted by law to local agencies, relating to subdivisions approvals and shall in no way be construed as a limitation on or diminution of any such authority.

Chapter 15 (Zoning) regulates zoning districts and other features of land uses in the city. Permitted and conditionally permitted uses are included in this chapter as well, including

recreational land uses to varying degrees of land use intensity. Definitions for various park and recreation facilities are also included.

(3) Parks and Trails Master Plan, City of Saratoga, 1991

The Parks and Trails Master Plan provides a framework to define how the City of Saratoga will implement a recreation system to serve all sections of the city's population. The Plan includes a planning context and specific methods and recommendations for the future provision, expansion, and operation of parks and passive and active recreational facilities within the city. It will be updated as needed to meet current and future needs, and to ensure that it complements and provides linkages to the County Trails and Pathways Master Plan and MROSD trails system.

(4) Saratoga Quarry Park Master Plan, 2014

The Quarry Parks Master Plan is a planning document to help guide development and management of the Saratoga Quarry Park. The Park consists of a 64-acre site situated between the Santa Cruz Mountains and Santa Clara Valley and was acquired by the City in 2011. The policies and goals set forth in the Master Plan are intended to set the stage for a unique local and regional destination that features trail and open space connectivity, provides for the interpretation of cultural and natural history, while protecting natural resources and habitat. The Plan is organized to provide broad goals and guidelines, preferred design recommendations, and policies to guide the evolution of the park, management, and operations.

(5) Hakone Estate and Gardens Plan, 2016

The Hakone Gardens Master Plan is the result of a collaborative effort between the Hakone Foundation and the City of Saratoga. The Plan is intended to help guide the restoration and future development of the 18-acre historic Japanese Garden. The plan sets forth long-term goals related to community connectivity, restoration of the gardens and buildings, increasing interpretative/educational elements, enhancing visitor experiences, increasing spaces for staff, and creating a sustainable organization.

3. Impacts and Mitigation Measures

The provision of recreational facilities and ability to fund their installation and maintenance is provided for at a Statewide level under the Quimby Act, a regulation allowing cities to require dedication of land or payment of fees for parks and recreation as a condition of tentative or parcel map approval.

Impacts to Parks and Recreation facilities resulting from implementation of the project are detailed below. Impacts were analyzed in accordance with significance criteria established by CEQA Guidelines, and State and local plans, regulations, and ordinances. This analysis accounts

for existing and proposed policies, goals, and applicable regulations, and existing and proposed parklands, open spaces, and recreation facilities.

a. Significance Criteria

According to CEQA Guidelines Appendix G, the project would have a significant impact related to parks or recreational facilities if it:

1. Increases the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
2. Includes recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

b. Analysis and Findings

The following discussion describes the potential impacts associated with parks and recreation resources that would result from the project.

(1) Increase Use or Expansion of Parks and Recreation Facilities (Criterion 1 & 2)

Development under the project has the potential to result in the development of up to 1,994 new residential units within the planning area. This has the potential to raise the total residential population, which could increase the use of existing neighborhood and regional parks or other recreational facilities. However, development of these residential units would occur over the course of the eight-year planning period and would therefore not result in or accelerate substantial physical deterioration of parks and recreational facilities. Moreover, development associated with the project would be required to comply with local regulations pertaining to the subdivision and design review process as described in *Regulatory Setting* above. These regulations include General Plan Policy OSC-3.1, Policy OSC-4.a, and Implementation Measure OSC-4.b and Article 14-25 of the Saratoga Municipal Code.

Policy OSC-3.1 requires the City to ensure that existing and future parks and dedicated open spaces remain part of the public domain in perpetuity. Implementation Measure OSC-4.a requires the City to encourage permanent dedication of recreational and open spaces through the subdivision entitlement process and other means. Implementation Measure OSC-4.b authorizes the City to use the Park In-lieu Fee Program to assist in the acquisition of parks.

Article 14-25 (Design Requirements) regulates development of subdivisions, including park and recreation dedication and fees, as well as permitting requirement of the property owner to reserve area(s) within the subdivision or site for parks, recreational facilities, or other public uses.

Article 15-58 (Mixed-Use Development Standards) includes additional information regarding in-lieu fees for park construction for mixed-use projects.

The City of Saratoga seeks to attain 5 acres of land be devoted to municipal park and recreational purposes for every 1,000 residents of the city. As described in the Open Space and Conservation Element, "In the year 2040, with a population estimated to be approximately 34,000, the City would require 170 acres of park lands. Currently there are 148 acres of parkland within Saratoga." With an estimated total population of 30,667 as of January 2022, the City is currently inconsistent with its 5 acres per 1,000 residents standard.⁴ As described in *Chapter III, Project Description*, new residential development associated with the project is expected to accommodate up to 1,994 residential units which would increase Saratoga's total population by approximately 5,703 people. Thus, buildout of the project would yield an increased demand of approximately 28.52 acres. As such, the City would remain inconsistent with the 5 acres per 1,000 residents standard.

Although the City does not meet this standard, in addition to municipal parks and recreation spaces there is over 250 acres of dedicated open spaces and easements throughout the city. Additionally, the Mid-Peninsula Open Space District holdings include over 320 acres within Saratoga's planning area that includes a variety of hiking, bicycle, and equestrian trails. There are also several school sites that provide playgrounds and fields that are available to the public when school is not in session.

Residential development facilitated by the project could require the construction of new or expanded parks and other recreational facilities. At this time, there are no plans for the construction or expansion of new or expanded parks or other recreational facilities.

To mitigate environmental impacts associated with this increased demand for additional parks and recreational facilities within the planning area, the City will continue to require that developers of residential units pay in-lieu fees for park construction or encourage the permanent dedication of parks, open space, and trails, as required under General Plan Implementation Measure OSC-4.b

While the construction or expansion of new or expanded parks and recreational facilities could result in environmental impacts, the specific impacts of providing new and expanded recreational facilities cannot be determined at this time, as the project does not designate specific sites for new or expanded parks and other recreational facilities. However, the facilities would be primarily provided on sites with land use designations that allow such uses and the environmental impacts of constructing and operating the parks and other recreational facilities would likely be similar to those associated with new residential development and redevelopment projects under the project. In addition, when a new or expanded recreational facility is proposed, the project would

⁴ $(30,667/1000) \times 5 = 153.34$. Total Parkland within the City of Saratoga is 148 acres.

be subject to compliance with all City codes and standards that would address potential impacts related to soil disturbance (e.g., dust) and, depending on the specific project, may be required to undergo additional environmental review under CEQA.

c. Cumulative Parks and Recreation Impacts

This analysis evaluates whether the impacts of the proposed project, together with the impacts of cumulative development, would result in a cumulatively significant impact with respect to parks and other recreational facilities. This analysis then considers whether the incremental contribution of the impacts associated with the implementation of the project would be significant. Both conditions must apply for a project's cumulative effects to rise to the level of significance.

The geographic context for the analysis of cumulative impacts of parks and recreational facilities includes those located within the city boundary, as well as within Santa Clara County, and the MROSD boundary. A significant cumulative environmental impact would result if this cumulative growth resulted in an increase in the use of existing parks and recreational facilities, such that substantial physical deterioration of the parks or recreational facilities would occur, be accelerated, to require the construction of new parks and recreational facilities or modification of existing parks and recreational facilities.

Regional growth within unincorporated Santa Clara County and in the surrounding cities of Cupertino, San Jose, Campbell, Monte Sereno, and Los Gatos, would result in increased demand for parks and other recreational facilities. All cumulative projects would be required to comply with City ordinances and General Plan policies that address parks and recreational facilities, such as paying park in-lieu fees and maintaining adequate parkland ratios. Further, potential future impacts to Santa Clara County parks, as well as the MROSD preserves, would be mitigated through the contribution of property taxes to ensure facilities at these locations are adequately maintained and sufficient to accommodate growth associated with cumulative development.

Development envisioned by the project would contribute to an incremental cumulative increase in the demand for parks and other recreational facilities. However, as discussed above, implementation of the project would not increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated. Furthermore, as discussed above, the construction or expansion of parks and other recreational facilities are not expected to result in significant adverse physical effects on the environment. It should be noted, however, that should a park or parks be developed in the city in the future, the City will determine if additional environmental review is required. Additionally, all future parks projects will be required to comply with all applicable City ordinances and General Plan policies. As such, development anticipated under the project would not create substantial impacts related to parks and other recreational facilities.

Therefore, impacts of the project on parks and other recreational facilities are not cumulatively considerable and the cumulative impact would be less than significant.

L. POPULATION AND HOUSING

This section describes the current population, housing, and employment characteristics of the City of Saratoga. This section also includes a discussion of the regulatory framework and analyzes potential impacts associated with implementation of the project and its associated development.

1. Setting

The City of Saratoga planning area consists of all properties located within the incorporated boundary of the city (approximately 12.78 square miles) and lands within the sphere of influence (approximately 2.83 square miles). The predominant land use in Saratoga is residential, which is mostly lower density, single-family homes. Medium density residential uses are comprised primarily of townhome and condominium units and are found near the intersections of Saratoga Avenue and State Route 85, Saratoga-Sunnyvale Road south of Prospect Road, and multiple properties adjacent to the Saratoga Village.

The commercial and shopping areas are primarily resident-serving and include the Saratoga Village located along Big Basin Way. Other major land uses in the city include community facilities sites such as the Saratoga Civic Center, located on the west side of Fruitvale Avenue, and West Valley College, which is located at the northeast corner of Fruitvale Avenue and Allendale Avenue.

a. Population

The California Department of Finance (DOF) estimates that Saratoga had a population of 30,667 persons as of January 1, 2022.¹ As described in Appendix B of the Housing Element Update, Saratoga’s 2020 population breaks down as follows:

Asian/Pacific Islander	54.3%
White	37.2%
Hispanic/Latino	3.6%
Black/African American	0.3%
Other/Multiple Races	4.6%
	100%

As shown in Table IV.L-1, Saratoga’s population grew from 28,061 people in 1990 to 31,030 people in 2020, an increase of approximately 11 percent.

¹ California Department of Finance (DOF), Demographic Research Unit, 2022. Population Estimates for California Cities, May 2. Available at: https://dof.ca.gov/wp-content/uploads/Forecasting/Demographics/Documents/E-1_2022PressRelease.pdf, accessed August 26, 2022.

TABLE IV.L-1 SARATOGA HISTORICAL POPULATION, 1990-2020

Year	Saratoga Population	Percent Increase/(Decrease) from Previous 5 Years	Santa Clara County Population	Share of County Population
1990	28,061	--	1,497,577	1.87%
1995	29,342	4.57%	1,594,818	1.84%
2000	29,849	1.73%	1,682,585	1.77%
2005	30,740	2.99%	1,752,696	1.75%
2010	29,926	(2.65%)	1,781,642	1.68%
2015	31,034	3.70%	1,912,180	1.62%
2020	31,030	(0.01%)	1,961,969	1.58%

Source: City of Saratoga 2023-2031 Housing Element Update, Appendix B.

b. Housing

According to DOF estimates, Saratoga had 11,309 housing units in as of January 1, 2022.² This included 9,451 detached single-family homes, 788 attached single-family homes, and 1,070 multi-family units.³ As described in the Housing Element Update, 84.6 percent of units are owner-occupied, and 15.4 percent are renter-occupied.

Vacant units make up 3.8 percent of the city’s total housing stock. The average household size in Saratoga has remained stable in the last few decades; it was 2.83 persons per household in 2000, 2.77 persons per household in 2010, and 2.86 persons per household in 2020.⁴

Housing growth in Saratoga has been relatively flat. As described in the Housing Element Update, the number of homes in Saratoga only increased by 1.6 percent from 2010 to 2020, which is below the growth rate for both Santa Clara County and the Bay Area during this time. Most of Saratoga’s existing housing stock was constructed prior to 1979.

In the Bay Area, the costs of housing have long been among the highest in the nation. As described in the Housing Element Update, as of 2020 the typical home value in the City of

² State of California, 2022. Department of Finance. Table 2: E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark, May.

³ State of California, 2022. Department of Finance. Table 2: E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark, May.

⁴ State of California, Department of Finance, Demographic Research Unit, Report E-8: Historical Population and Housing Estimates for Cities, Counties, and the State 2000 to 2010, November 2012; and Report E-5, Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark, May 2022.

Saratoga was \$2,996,100, with most homes valued above \$2,000,000. This represents a 174 percent increase in home value since 2001 when the typical home value was \$1,093,440. Saratoga's home values are significantly higher than Santa Clara County (\$1,290,970) and the Bay Area (\$1,077,230), as is the city's percent increase in home prices since 2001.

Similar to home values, rents have also increased dramatically across the Bay Area in recent years. The median rent as of 2019 in the city was \$2,730 per month, representing a 71 percent increase since 2009. The County level median rent increased to \$2,150 representing a 39.4 percent increase. At the regional level, median rent increased to \$1,850, a 54 percent increase over 2009.

The Association of Bay Area Governments (ABAG) is responsible for forecasting changes to the Bay Area population and economy. Plan Bay Area 2050 was adopted by the ABAG Executive Board and the Metropolitan Transportation Commission on October 21, 2021, and shows the plan's projected household and job growth for the region looking out to 2050.⁵ ABAG no longer develops growth projections for population, housing, and employment at the local level, but does provide sub-regional forecasts projections. ABAG projects Santa Clara County to provide 33 percent of the region's growth in households by 2050, growing from 623,000 households in 2015 to 1,075,000 households in 2050, an increase of 453,000 households.⁶

Saratoga is located in the West Santa Clara County superdistrict (Superdistrict No. 10) used by ABAG for sub-regional growth projections, as presented in *Plan Bay Area 2050*. The number of households in this superdistrict is projected to grow by 42 percent between 2015 and 2050, from 121,000 households to 172,000 households, representing 4 percent of growth in the San Francisco Bay region.⁷

c. Employment

The following discussion on Saratoga's employment sector is provided as context for the subsequent discussion on the jobs-housing balance in the city. The jobs-housing balance is a metric for achieving and tracking progress on the transportation and environmental goals of Plan Bay Area 2050 that are intended to accommodate the population growth anticipated for the region over the next 30 years.

⁵ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, October 21.

⁶ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area 2050, Final Blueprint Growth Pattern, January 21.

⁷ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, Final Blueprint Growth Pattern, January 21.

As detailed in the Housing Element Update, there are approximately 14,063 employed residents in Saratoga. A breakdown of the employees by type of occupation is shown in Table IV.L-2. As shown in the table, the majority of employed residents are within the financial and professional services or manufacturing, wholesale, and transportation. In 2020 the median household income in Saratoga was \$201,046.⁸

TABLE IV.L-2 EMPLOYED POPULATION IN THE SARATOGA BY INDUSTRY TYPE

Industry Category	Estimated No. of Employees	Percentage of Total
Financial and Profession Services	4,546	32.3%
Manufacturing, Wholesale, and Transportation	3,427	24.4%
Health and Educational Services	2,224	15.8%
Information	1,112	7.9%
Retail	1,172	8.3%
Other	1,289	9.2%
Construction	293	2.1%
Total	14,063	100%

Source: Saratoga Housing Element Update, Appendix B, U.S. Census Bureau, American Community Survey 5-Year Data (2017-2021), Table C2403.

Employment data for Saratoga produced by the California Employment Development Department, which differs slightly from the Census Bureau data, shows that the Great Recession of 2007 through 2009 produced an increase in the city’s unemployment rate that persisted for about 3 years. As shown in Table IV.L-3, in 2011 unemployment began trending downward and had achieved a low rate of 2.5 percent by 2019. As occurred throughout the entire country, the COVID-19 Pandemic drove unemployment back up to 4.9 percent in 2020 but returned to a lower rate of 3.8 percent in 2021.

Plan Bay Area 2050 projects the overall regional count of employment to grow from around 4.0 million jobs in 2015 to almost 5.4 million jobs by 2050, an increase of about 35 percent.⁹ Plan Bay Area 2050 also projects that implementation of the full bundle of strategies adopted in the Plan would produce approximately 1.36 million new housing units by 2050, well above the 441,000-unit need identified for the 2023-2031 Regional Housing Needs Allocation (RHNA) cycle. This

⁸ U.S. Census Bureau, American Community Survey, Table S1903: Median Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars), [undated].

⁹ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, Final Blueprint Growth Pattern, January 21.

TABLE IV.L-3 SARATOGA EMPLOYMENT, 2010-2021

Year	Labor Force	Employment	Unemployment	Unemployment Rate
2010	13,500	12,500	1,000	7.7%
2011	13,600	12,700	900	6.8%
2012	13,900	13,100	800	5.7%
2013	14,100	13,400	700	4.7%
2014	14,200	13,700	500	3.7%
2015	14,400	14,000	400	3.0%
2016	14,800	14,200	600	3.9%
2017	14,800	14,300	500	3.5%
2018	14,700	14,300	400	2.8%
2019	14,700	14,300	400	2.5%
2020	14,300	13,600	700	4.9%
2021	14,400	13,800	500	3.8%

Source: California Employment Development Department, 2022.

would achieve a regional jobs-housing ratio in 2050 of approximately 1.3.¹⁰ While Plan Bay Area 2050 identifies growth geographies and strategies for the next 30 years, the RHNA is a short- to medium-term housing allocation process. However, the two efforts are coordinated, with RHNA’s near-term focus setting the stage for early implementation of Plan Bay Area 2050’s envisioned growth pattern, and the Housing Element Update is a key component of that planning process.

d. Jobs-Housing Balance

A key objective of Plan Bay Area 2050 is to improve the jobs-housing balance throughout the region, as this achieves important environmental goals of reducing vehicle traffic and associated emissions of air pollutants and greenhouse gases. A jobs-housing ratio of 0.75 to 1.5 is considered beneficial for reducing traffic congestion and vehicle miles traveled (VMT).¹¹

As described in the Housing Element Update, the balance between jobs and workers may directly influence the housing demand in a community. New jobs may draw new residents, and when there is high demand for housing relative to supply, many workers may be unable to afford to live

¹⁰ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, Final Blueprint Growth Pattern, January 21.

¹¹ U.S. Environmental Protection Agency (EPA), 2014. EnviroAtlas Fact Sheet: Employment to Housing Ratio, November.

where they work, particularly when job growth has occurred in relatively lower wage jobs. This dynamic not only means many workers will need to prepare for longer commutes, but in the aggregate, it contributes to traffic congestion and time lost for all road users. If there are more jobs than employed residents, it means a city is relatively jobs-rich, typically also with a high jobs-to-household ratio. The jobs-household ratio in Saratoga has increased from 0.67 in 2002, to 0.71 jobs per household in 2018.¹² In 2015, the County's jobs-housing ratio was 1.5.¹³

2. Regulatory Setting

a. State Regulations

(1) State Housing Element Law

California Government Code (Sections 65580–65589.11) requires each city and county in California to prepare and implement a general plan housing element that identifies and analyzes the jurisdiction's existing and projected housing needs, based on population and employment projections, and identifies sites where new housing can be developed to meet the projected demand. The Housing Element Law requires cities and counties to update the Housing Element of their General Plans every 5 or 8 years (depending on location/jurisdiction) to ensure that they meet their responsibilities in helping the State of California meet its housing goals and to address regional housing needs. Additional information about this law is presented in *Section IV.I, Land Use, Agriculture, and Forestry Resources*.

(2) Housing Accountability Act

The Housing Accountability Act (HAA) is intended to significantly increase the approval and construction of new housing for all economic segments of California's communities. This law is described in detail in *Section IV.I, Land Use, Agriculture, and Forestry Resources*, as is the Density Bonus Law, which provides residential developers with incentives to develop affordable and senior housing by allowing them to increase the density of their projects when they meet stipulated affordability thresholds.

(3) Housing Crisis Act of 2019 (Senate Bill 330)

Senate Bill (SB) 330 enacts changes to local development policies, permitting, and processes. These changes include establishing new criteria for application requirements and processing

¹² U.S. Census Bureau, Longitudinal Employer-Household Dynamics, Workplace Area Characteristics (WAC) files (Jobs), 2002-2018; California Department of Finance, E-5 (Households).

¹³ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, Final Blueprint Growth Pattern, January 21.

times for housing developments. This law also prevents localities from decreasing the housing capacity of any site, such as through downzoning or increasing open space requirements, and prevents localities from establishing non-objective standards. This law also requires that any proposed demolition of housing units be accompanied by a project that would replace or exceed the total number of units demolished.

(4) The California HOME Act (Senate Bill 9)

SB 9 streamlines the process for a homeowner to create a duplex or subdivide an existing lot. Any new housing created as a result of this bill must meet a specific list of qualifications that includes protection of historic districts and preservation of environmental quality.

b. Regional Regulations and Plans

(1) Regional Housing Needs Allocation

The California Housing Element Law referenced above includes a requirement, promulgated in Government Code Section 65584, for the California Department of Housing and Community Development (HCD) to determine the existing and projected need for housing in each region of the State. The HCD must prepare and adopt a RHNA Plan that allocates a share of the regional housing need to each city and county. The RHNA Plan specifies the number of units, by affordability level, that need to be accommodated within the region during the Housing Element planning period. The regional councils of government (COGs) then distribute a share of the region's housing need to each city, town, and county in the region. Each local government must then update the Housing Element of its general plan to inventory housing sites—zoned for residential use—sufficient to meet their RHNA.

The COG assigning RHNA goals to each local jurisdiction in the nine-county San Francisco Bay Area is the ABAG. The City of Saratoga's allocation is for 1,712 housing units during the 2023-2031 Housing Element Update. At least 42 percent (715) of the units must be affordable to low- or very low-income households. The breakdown of Saratoga's RHNA is presented in Table IV.L-4.

To ensure an ongoing supply of housing during this planning period, and to comply with new "no net loss" provisions of SB 166, this RHNA is further buffered by an additional 282 housing units (16 percent), totaling 1,994 housing units. More information on the RHNA is provided in *Chapter III, Project Description*.

TABLE IV.L-4 2023-2031 ABAG HOUSING ALLOCATIONS FOR SARATOGA

Income Category	Number of Housing Units	Portion of Total Allocation
Very Low-Income (<50% of Median Area Income)	454	27%
Low-Income (51-80% of Median Area Income)	261	16%
Moderate-Income (81-120% of Median Area Income)	278	16%
Above Moderate-Income (>120% of Median Area Income)	719	41%
Total	1,712	100%

Source: City of Saratoga 2023-2031 Housing Element Update.

(2) Plan Bay Area 2050

Plan Bay Area 2050, discussed in detail in *Section IV.I, Land Use, Agriculture, and Forestry Resources*, is a 30-year plan for the Bay Area that presents 35 strategies for improving housing, the economy, transportation, and the environment across the nine-county region. *Plan Bay Area 2050* helps guide the new State-mandated RHNA numbers for Bay Area jurisdictions. The integrated Implementation Plan includes over 80 concrete actions that can be implemented at the city, county, regional, or state level within the next five years to advance each of the 35 strategies. With respect to housing strategies, the Plan projects that the Bay Area will need to add more than 441,000 new affordable housing units by 2050 to meet the region’s housing needs.

The following housing strategies in Plan Bay Area 2050 are relevant to and would be supported by the proposed Housing Element:

H1. Further strengthen renter protections beyond State law. Building upon recent tenant protection laws, limit annual rent increases to the rate of inflation, while exempting units less than 10 years old.

H2. Preserve existing affordable housing. Acquire homes currently affordable to low and middle-income residents for preservation as permanently deed-restricted affordable housing.

H3. Allow a greater mix of housing densities and types in Growth Geographies. Allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and select High-Resource Areas.

H4. Build adequate affordable housing to ensure homes for all. Construct enough deed-restricted affordable homes to fill the existing gap in housing for the unhoused community and to meet the needs of low-income households.

H5. Integrate affordable housing into all major housing projects. Require a baseline of 10-20% of new market-rate housing developments of five units or more to be affordable to low-income households.

H6. Transform aging malls and office parks into neighborhoods. Permit and promote the reuse of shopping malls and office parks with limited commercial viability as neighborhoods with housing for residents at all income levels.

H7. Provide targeted mortgage, rental and small business assistance to Equity Priority Communities. Provide assistance to low-income communities and communities of color to address the legacy of exclusion and predatory lending, while helping to grow locally owned businesses.

H8. Accelerate reuse of public and community-owned land for mixed-income housing and essential services. Help public agencies, community land trusts and other non-profit landowners accelerate the development of mixed-income affordable housing.

c. Local Plans

(1) Saratoga Housing Element Update

The Housing Element is one of seven mandatory elements of a general plan required by State Planning Law (Government Code Section 65300 et seq.). California Government Code Section 65580-65589.8 requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups. Housing Elements are required to contain a series of goals, policies, and implementing programs that are intended to promote housing production within a community. These goals, policies, and programs are required to be accompanied by a list of eligible land resources identified for planned residential development to accommodate the State-mandated RHNA. This list of eligible land resources is referred to as a community's Housing Sites Inventory.

3. Impacts and Mitigation Measures

This section analyzes the impact related to population and housing that would result from implementation of the project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the project would result in a significant impact on population and housing if it would:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

b. Analysis and Findings

The following discussion describes the potential population and housing impacts that would result from the project.

(1) Induce Unplanned Population Growth (Criterion 1)

Implementation of the residential development under the project could result in the creation of 1,994 new housing units in Saratoga if all identified housing sites are developed at the maximum allowable density. Although Saratoga's RHNA share for the 2023-2031 Housing Element Update is 1,712 housing units, the HCD recommends that each jurisdiction provides a buffer to avoid non-compliance. The capacity provided by Saratoga's proposed housing sites would provide an approximate 16-percent buffer above the RHNA.

The project would include rezoning several sites to allow more intense residential development as well as amending the zoning ordinance and general plan. The physical environmental effects of these rezonings and the greater density of development that could result are addressed in other topical sections of this EIR, including those addressing air quality, greenhouse gases, transportation, and utilities. The project would provide for residential growth and associated population growth in accordance with the City's proposed policies for location, type, and intensity of residential development, as set forth in the Housing Element Update and Land Use Element of the General Plan.

It is unrealistic to assume that all parcels identified included in the Housing Sites Inventory would be developed and that they would all be developed at the maximum allowable density, so the actual number of housing units that would be developed as a result of the project would likely be below 1,994 units. While the Housing Element Update encourages the development of new housing, the actual construction of new units will be driven by market forces, the motivation of property owners, availability of subsidies for affordable housing, and other factors outside the control of the city. Nonetheless, this theoretically possible number of 1,994 new housing units is

used as a basis for estimating the environmental effects associated with implementation of the project.

Based on the DOF population estimates, Saratoga had an average 2020 household size of 2.86 persons. Applying this average, development of 1,994 new housing units would increase the population in Saratoga by approximately 5,703 people. In addition to the reasons cited above, such as it is unlikely that all sites would be developed at their maximum densities, other factors would also serve to reduce this number in actual practice. This includes that many of the new units would be accessory dwelling units (ADUs) added to existing residential properties, studio apartments, and one-bedroom apartments, all of which would typically provide a residence for one or two people. Implementation of the project would likely increase the population in Saratoga by fewer than the conservative estimate of 5,703 people. Nonetheless, this EIR uses the conservative estimate for the purpose of considering the environmental effects of the project.

The Housing Element Update is intended to accommodate anticipated growth and facilitate development of new housing to meet the City's RHNA share determined by ABAG for the 2023-2031 planning period. As such, the population growth associated with the creation of up to 1,994 new housing units would not be unplanned; to the contrary, it is specifically being planned for, with suitable sites for development identified. The project would be consistent with the General Plan, including the Housing Element Update, as amended by the project. The population growth would also be consistent with Plan Bay Area 2050, a regional plan intended to guide the regional population growth anticipated by 2050. Consequently, the project would not induce substantial unplanned population growth. This would be a less-than-significant impact.

(2) Displace People or Housing (Criterion 2)

Some of the housing sites identified in the Housing Element Update are currently non-vacant/underutilized and support some degree of existing land use, which includes some limited multi-family development, as shown in Table III-7 in *Chapter III, Project Description*. However, a substantial number of the housing sites identified in the Housing Element Update as non-vacant/underutilized include non-residential uses. All the non-vacant parcels are considered underutilized and good candidates for redevelopment.

Only two of the non-vacant/underutilized sites currently include residential uses. The Fellowship Plaza Housing Site is an approximately 10.5-acre parcel and is currently developed with 150 one and two-bedroom dwelling units. As described in the Housing Element Update, the property owner is interested in adding a fifth building to the existing housing site, which would be similar in size and shape to the site's existing buildings which contain between 75 and 80 units each. Removal of existing units would not be anticipated as part of the construction of a new building at this site.

The Village East Housing Site is presently developed with two-story office buildings constructed in the 1950s, 60s, and 80s, a small commercial center, and lower-density multifamily uses constructed in 1946. While it is possible that existing lower-density multifamily use would be removed as part of redevelopment of the site, the proposed site could accommodate development of 90 units.

The Housing Element Update does include the following goals and policies to preserve housing stock:

Goal 2: Incentivize and Preserve Housing. Programs that conserve housing currently available and affordable to lower-income households, and programs that prevent or reverse deterioration in areas exhibiting symptoms of physical decline.

Policy 2.1: Continue to monitor, track, and encourage preservation of affordable housing at-risk of loss or conversion to market rate housing.

Policy 2.2: Connect owners to resources to rehabilitate and improve the condition of existing affordable housing stock.

Although existing housing units could be displaced as part of a property's redevelopment, displaced units would likely be replaced by higher-density residential development resulting in a net increase in housing. Implementation of residential development under the project would result in a net increase of units within the city and would not result in displacement of substantial numbers of population or housing. Therefore, this would be a less-than-significant impact.

c. Cumulative Population and Housing Impacts

As discussed in the preceding impact discussions, the proposed project would not result in substantial unplanned population growth or the displacement of substantial numbers of housing units, requiring the construction of replacement housing. The potential growth in housing and population that would be facilitated by the project would be consistent with the City's RHNA, as assigned by ABAG, and would be consistent with *Plan Bay Area 2050*, the regional plan guiding sustainable development in the Bay Area. Saratoga is located in the West Santa Clara County superdistrict (Superdistrict No. 10) used by ABAG for sub-regional growth projections; it is anticipated that within this superdistrict there will be an increase of 51,000 households between 2015 and 2050. Projections associated with implementation of the project would be consistent with this anticipated increase.

Other planning jurisdictions in the Bay Area are currently updating their housing elements on the same State-mandated schedule, and those cities and counties would also be identifying available sites to accommodate their designated RHNA share. Together, Bay Area jurisdictions must accommodate more than 441,000 new housing units to meet the RHNA for the region during the

2023-2031 planning period. Like Saratoga, the housing elements prepared by other jurisdictions are plans to prepare for the population growth projected for the region and the associated need for new housing to accommodate that growth. Thus, the growth accommodated by the housing elements of other jurisdictions would be planned growth, not unplanned growth. Consequently, implementation of the project would not make a cumulatively considerable contribution to a regional impact related to unplanned population growth.

While it is possible that new housing development in other jurisdictions could lead to the displacement of existing housing, either consistent with the local housing element or otherwise, implementation of the project would result in a net increase in housing. Thus, the project would not make a cumulatively considerable contribution to a regional impact related to a substantial displacement of housing or people.

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M. PUBLIC SERVICES

This section describes the existing fire protection services, police services, schools, and libraries and the environmental effects of implementation of the project. See *Section IV.K, Parks and Recreation*, for a discussion of the impacts related to park and recreational facilities.

1. Setting

a. Fire Protection Services

The Santa Clara County Fire Department (SCCFD) and Saratoga Fire Protection District (SFPD) provides fire services to Saratoga (see Figure IV.M-1). The SCCFD's service area covers over 132 square miles and encompasses the cities of Cupertino, Los Gatos, and Monte Sereno, a portion of Saratoga, and rural unincorporated lands in western Santa Clara County. More than 225,000 residents reside within SCCFD's service area. Services provided by SCCFD are divided into seven major sections: Fire Suppression/Rescue, Fire Investigation, Emergency Medical Services, Special Operations Task Force, Fire Prevention, Hazmat, and Wildland Urban Interface. In total, the SCCFD employs over 300 fire prevention, suppression, investigation, administration, and maintenance personnel across 15 stations. Daily 24-hour emergency response staffing consists of 66 firefighters and officers operating out of 15 fire stations with 31 front-line apparatus and three command vehicles.¹ The department's suppression force is also augmented by approximately 30 volunteer firefighters. Of the 15 stations under SCCFD's jurisdiction, two are located within Saratoga city boundaries (see Figure IV.M-2).

- **West Valley Fire Station:** The West Valley Fire Station is located at 19800 Cox Avenue. The station is staffed by three personnel and has three engines. West Valley Fire Station is owned and operated by SCCFD.²
- **Saratoga Fire Station:** The Saratoga Fire Station is located at 14380 Saratoga Avenue. The station is staffed by seven personnel and has five engines. Saratoga Fire Station is owned by Saratoga Fire District.³

In July 2008, SFPD entered into a contract with SCCFD. Under the contract, SFPD maintains ownership of the single station and SCCFD staffs a several types of engines including Type 1 engine, Type 3 engine, and a rescue vehicle with seven on duty firefighters.

¹ Santa Clara County Fire Department (SCCFD), 2022. Overview. Available at: <https://www.sccfd.org/about-sccfd/sccfd-overview/>, accessed November 1, 2022.

Santa Clara County Fire Department (SCCFD), 2022. Facilities and Fire Stations: West Valley Fire Station. Available at: <https://www.sccfd.org/about-sccfd/facilities-and-fire-stations/#westvalley>, accessed November 1, 2022.

³ Santa Clara County Fire Department (SCCFD), 2022. Facilities and Fire Stations: Saratoga Fire Station. Available at: <https://www.sccfd.org/about-sccfd/facilities-and-fire-stations/#saratoga>, accessed November 1, 2022.

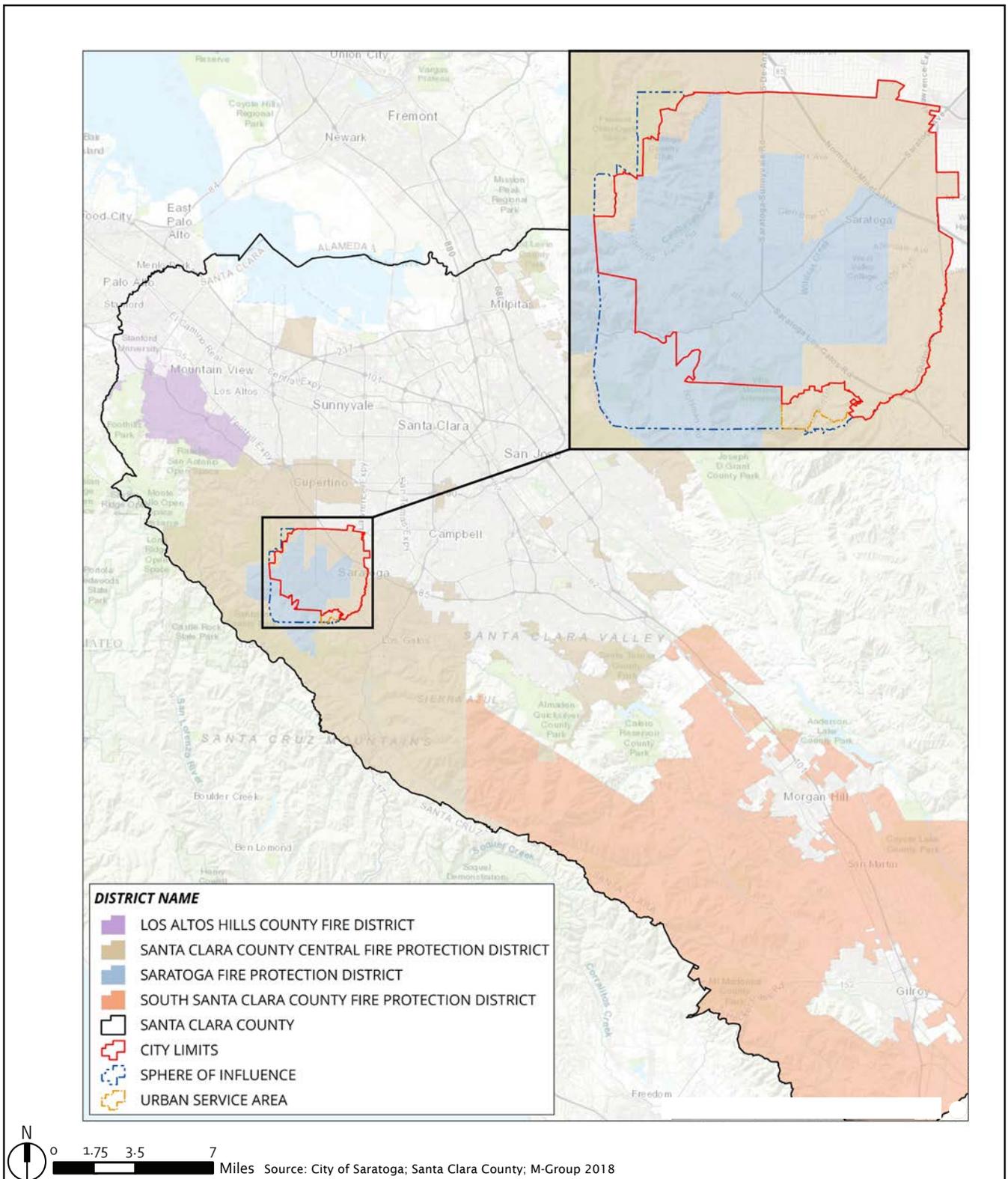


Figure IV.M-1
 Santa Clara County Central Fire Protection Districts
 Saratoga Housing and Safety Elements, and 2040 General Plan Updates EIR

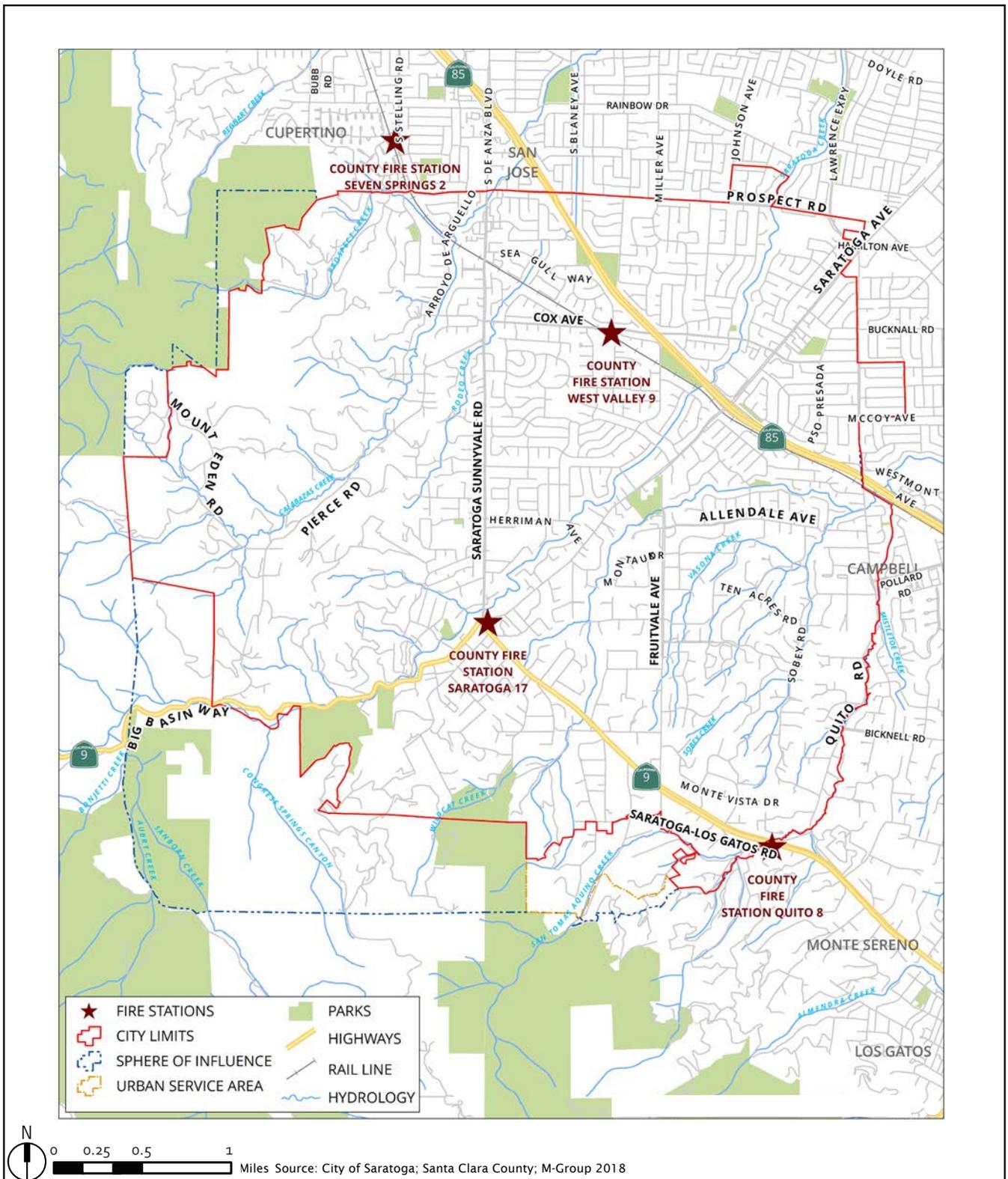


Figure IV.M-2
Fire Stations

The SFPD service area covers approximately 12.5 square miles and encompasses one-half of the city of Saratoga as well as adjacent unincorporated lands to the west and southwest of the city. Approximately 14,500 residents reside within SFPD's service area. Services provided by the SFPD include fire prevention, firefighting, rescue and emergency medical response, environmental hazard response, and operation of the City's Early Warning Fire Alarm System.⁴

State law designates all lands within the city limits of Saratoga as Local Responsibility Area (LRA) for purposes of wildland fire protection.⁵ The unincorporated portion of the SFPD is designated State Responsibility Area (SRA). In these areas, the California Department of Forestry and Fire Protection (CAL FIRE) share jurisdiction for wildland fires. CAL FIRE evaluates SRA areas for wildfire potential and designates them as Moderate, High, and Very High Fire Hazard Severity Zones (FHSZs). Areas outside of the WUI areas are designated Local Responsibility Areas (LRAs).

Additionally, the Department utilizes a "regional response model." Should an incident require response from multiple units or should the unit in closest proximity be unable to adequately assist, units based out of "core stations" are deployed. The purpose of these stations is to serve across jurisdiction lines.

b. Police Protection Services

The City contracts with the Santa Clara County Sheriff's Office to provide police services. The Department has a total of 1,453 sworn law enforcement officers. The Sheriff's Office serves the City of Saratoga and the unincorporated areas of the planning area through its West Valley Division. The Sheriff's Office also maintains contracts with the Santa Clara County Superior Court, Valley Transportation Authority, and the Santa Clara County Parks Department for law enforcement services. The Sheriff's Office has a service population of approximately 100,000 to 125,000 people (based on resident population).

The West Valley Division is located at 1601 S. De Anza Boulevard #148 in Cupertino, California. The Division's service area encompasses the cities of Saratoga, Cupertino, and Los Altos Hills as well as the western unincorporated areas of the county from Summit Road to Moffett Field (see Figure IV.M 3). Currently, there are 83 sworn positions and seven professional support staff assigned to the Division. Deputies of the Division provide a full range of law enforcement

⁴ Saratoga Fire Protection District (SFPD), 2022. General District Info. Available at: <https://www.saratogafire.org/general-district-info/#:-:text=In%20July%202008%2C%20the%20District,a%20part%20of%20business%20manager,accessed%20November%201,%202022>.

⁵ County of Santa Clara, 2016. Santa Clara County Community Wildfire Protection Plan. Prepared by SWCA Environmental Consultants, August.

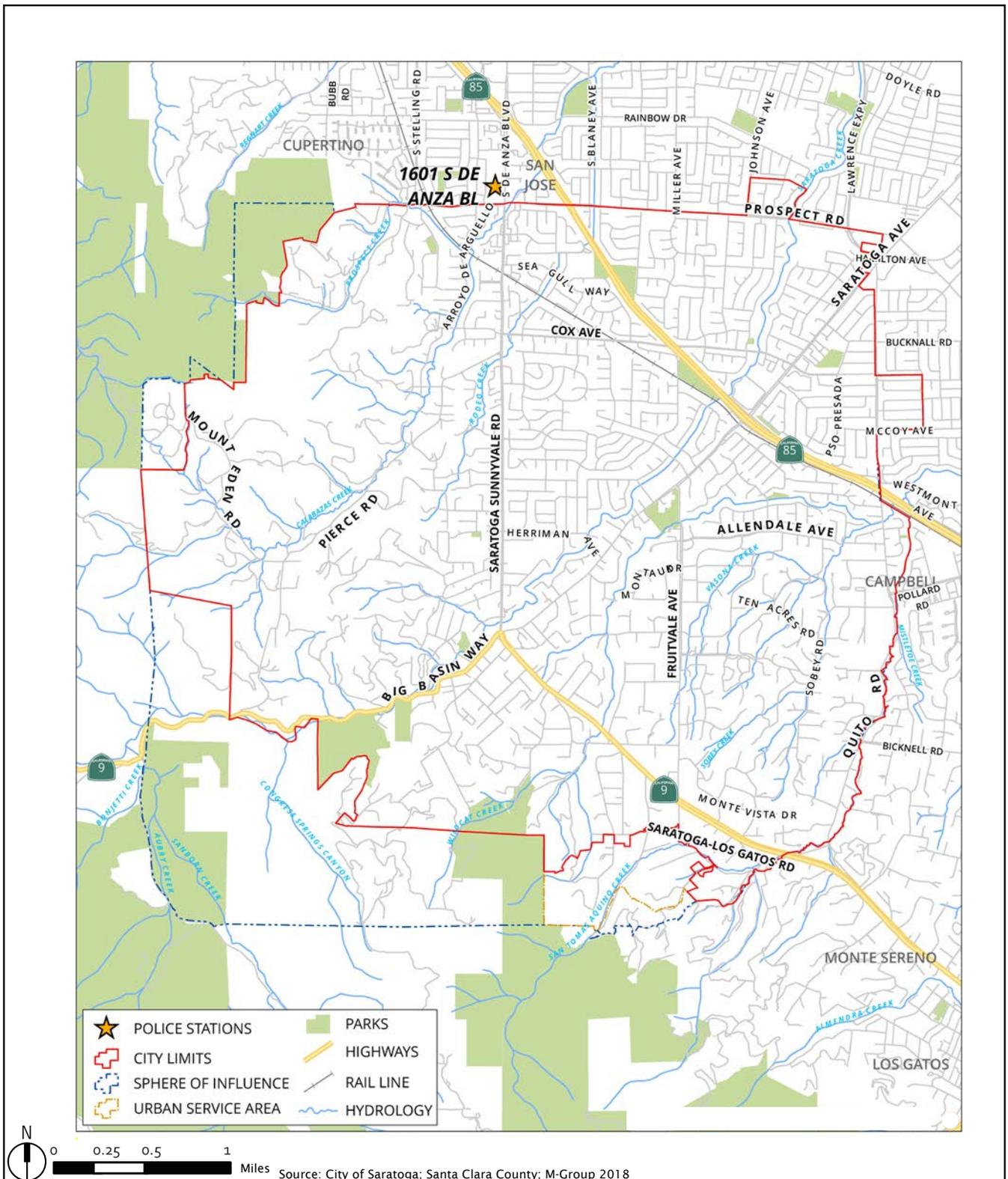


Figure IV.M-3
Police Stations

responsibilities including patrol, traffic enforcement, investigative services, school resource officers, neighborhood resource officers, K-9 services, and special enforcement assignments.⁶

c. Schools

The City of Saratoga is served by four elementary school districts, see Figure IV.M-4), three high school districts (see Figure IV.M-5), and two community college districts. Of the four elementary school districts serving the City of Saratoga, the Saratoga Union School District (SUSD) is the only one located entirely within the city's boundaries. All other elementary school districts overlay the City of Saratoga and surrounding cities. Saratoga is also served by two private schools. Of the three high school districts serving the City of Saratoga, none are located entirely within the city's boundaries. The locations of the public schools that serve the City of Saratoga are depicted in Figure IV.M-6.

Per California Government Code Sections 65996 and 65996(a), many of the school districts collect developer fees for new residential and commercial/industrial development. In February 2022, the State Allocation Board (SAB) increased the maximum Level I school fee assessment for California school districts to \$4.79 per square foot of residential development and \$0.78 per square foot for commercial and industrial development. Revenue generated by impact fees is used together with other district funds (e.g., State grants, general obligations bonds) to carry out capital improvements.

(1) Saratoga Union School District⁷

SUSD serves students in grades TK/K-8 across three elementary schools and one middle school. SUSD is an open enrollment district, meaning no property addresses have been assigned to a specific school. Instead, student placement at an elementary school site within SUSD is based on preference and space availability. Proximity of a student's place of residence to school is not a criterion in placement. The SUSD service area encompasses most of Saratoga. Table IV.M-1 below compares total capacity to total enrollment for the four schools within SUSD.

Given that current enrollment in SUSD is below total capacity, the District estimates that it would be able to accommodate an additional 702 students without additional facilities being developed. Accommodating additional students would, however, require the addition of teaching and support staff on all sites.

⁶ Santa Clara County Sheriff's Office, 2022. West Valley Patrol. Available at: <https://countysheriff.sccgov.org/west-valley-patrol>, accessed November 1, 2022.

⁷ Saratoga Union School District (SUSD). Our Schools. Available at: <https://www.saratogausd.org/domain/16>, accessed December 21, 2018.

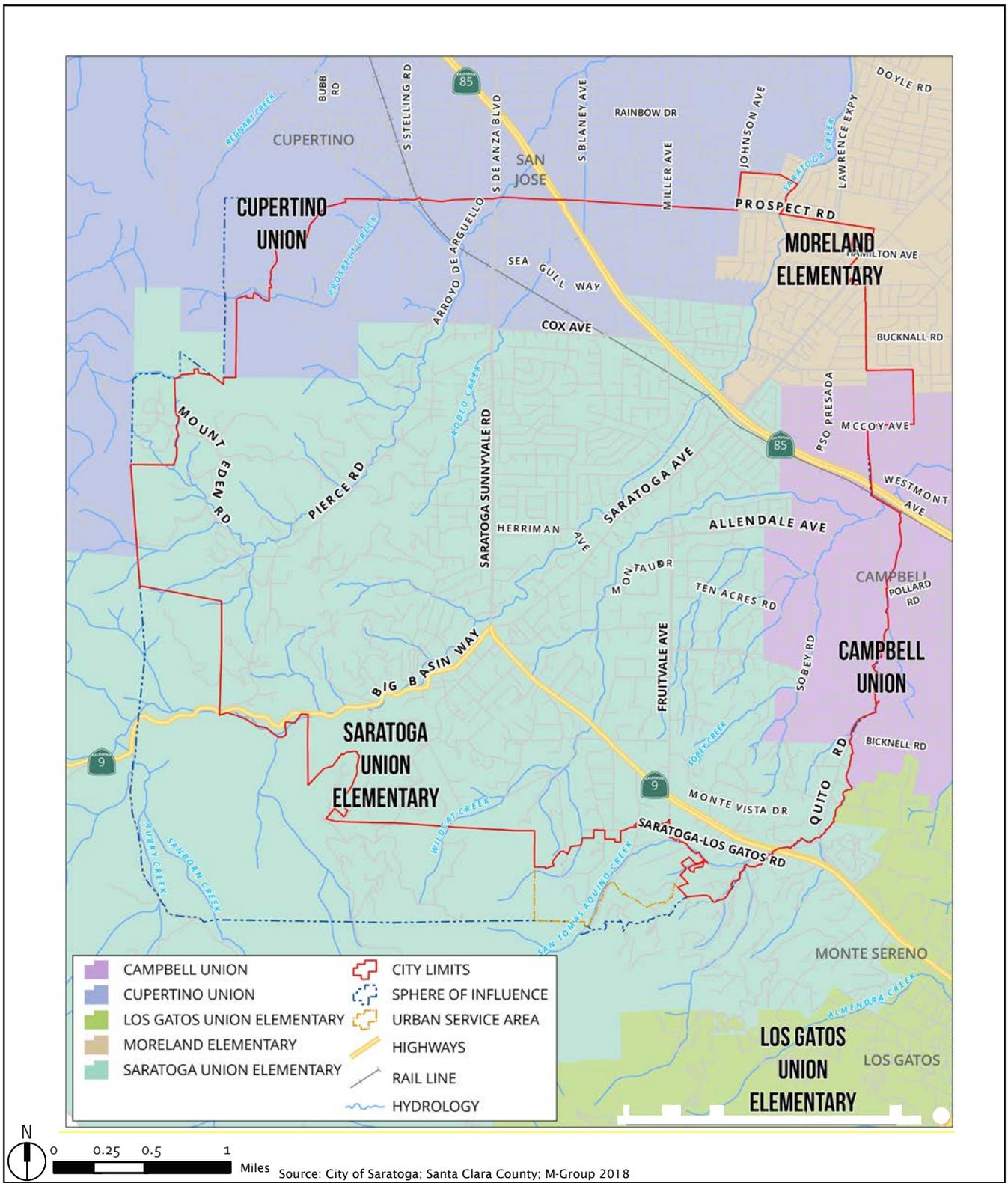


Figure IV.M-4
Elementary School District Boundaries

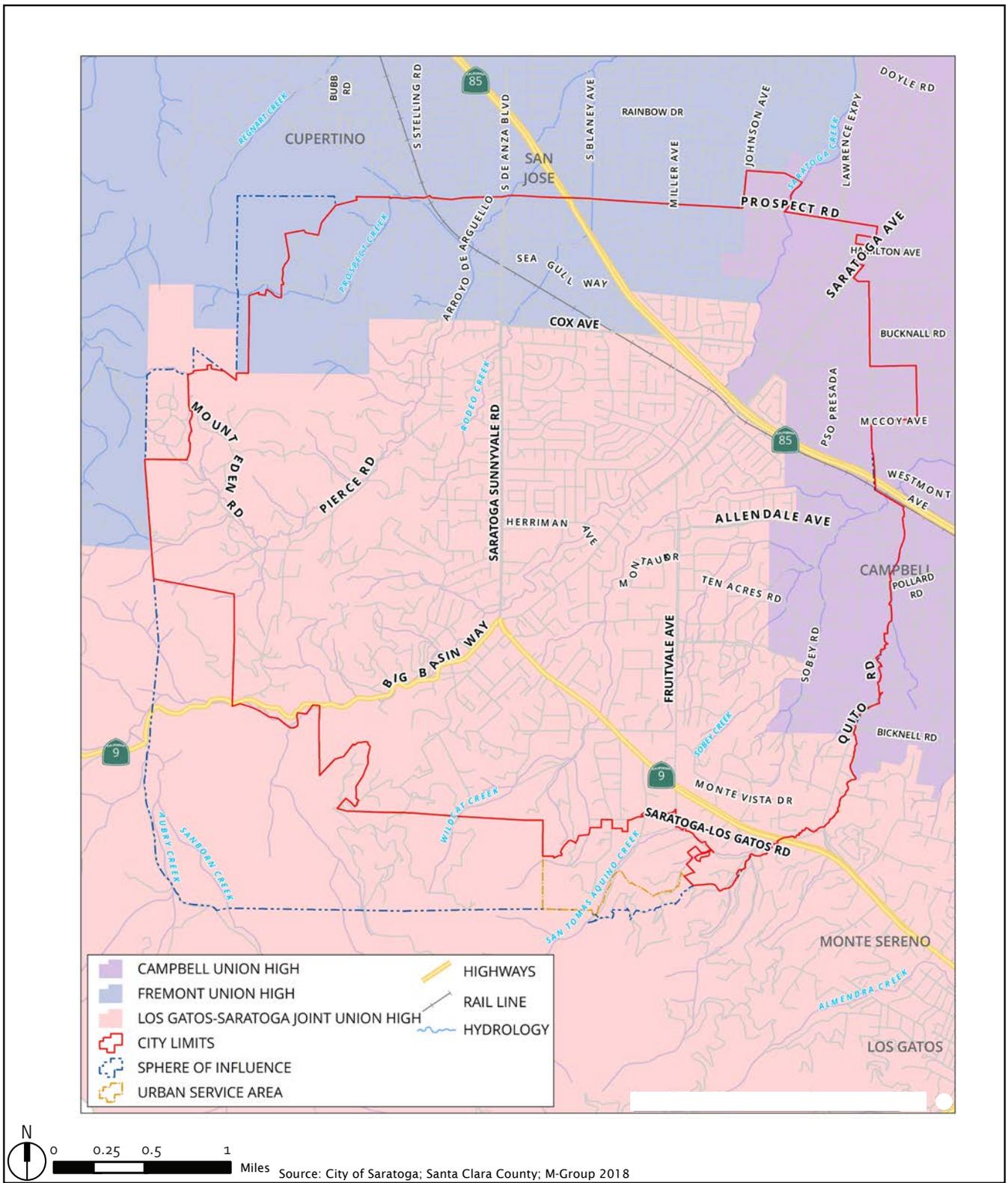


Figure IV.M-5
High School District Boundaries

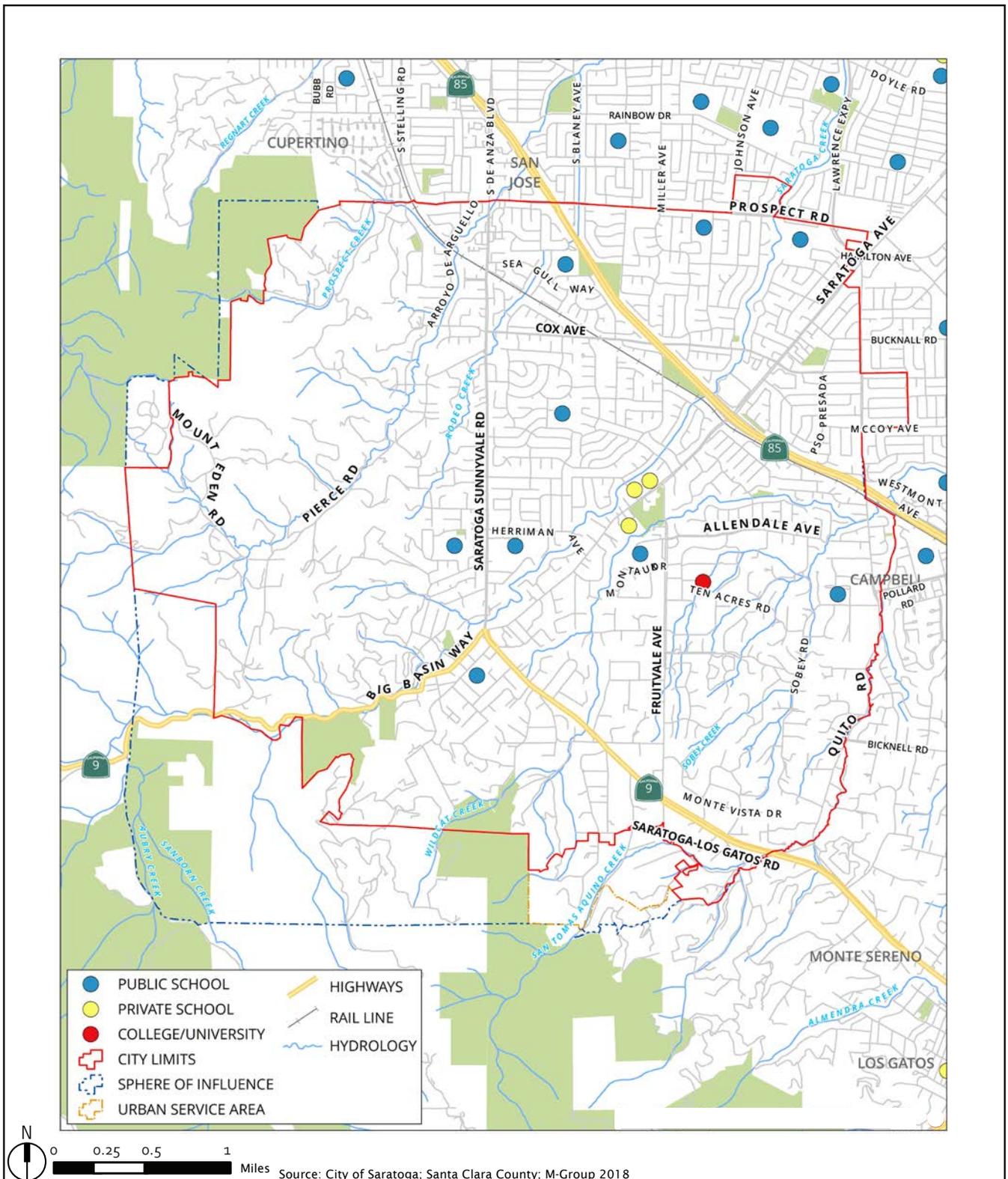


Figure IV.M-6
School Locations

TABLE IV.M-1 SARATOGA UNION SCHOOL DISTRICT ENROLLMENT CAPACITY

School	Grades Served	Address	Total Capacity	Total Enrollment 2021-2022 AY ^a
Argonaut Elementary	K-5	13200 Shadow Mountain Drive	440	343
Foothill Elementary	K-5	13919 Lynde Avenue	440	280
Saratoga Elementary	K-5	14592 Oak Street	564	276
Redwood Middle School	6-8	13925 Fruitvale Avenue	908	675
Total			2,352	1,574

^a Data Quest, 2021-22. Saratoga Union School District 2021-2022 Enrollment by Grade. Available at: <https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdLevels.aspx?cds=4369682&aggllevel=District&year=2021-22>, accessed August 29, 2022.

Source: Saratoga Union School District (SUSD), 2022. Written communication with Urban Planning Partners, August 4.

As of 2022, the SUSD collects developer fees of \$0.63 per square foot for residential development and \$0.42 per square foot for commercial development.⁸

(2) Cupertino Union School District

Cupertino Union School District (CUSD) serves students grades K-8 across 17 elementary schools, one K-8 school, and five middle schools located throughout the City of Cupertino and portions of Los Altos, San Jose, Santa Clara, Saratoga, and Sunnyvale.⁹ Total district enrollment for the 2021-2022 academic year was 14,084.¹⁰ Students residing in northern Saratoga are served by Blue Hills Elementary, located at 12300 Saratoga Avenue, and Christa McAuliffe School, located at 12211 Titus Avenue. Total enrollment at Blue Hills Elementary was 280 for the 2021-2022 academic year.¹¹ Total enrollment at Christa McAuliffe School was 607 for the 2021-2022 academic year.¹²

⁸ Saratoga Union School District (SUSD), 2022. Written communication with Urban Planning Partners, August 4.

⁹ Cupertino Union School District (CUSD), 2022. About Us. Available at: <https://www.cusdk8.org/about-us>, accessed August 29, 2022.

¹⁰ Ed Data, 2022. Cupertino Union. District Profile - Cupertino Union. Available at: <http://www.ed-data.org/district/Santa-Clara/Cupertino-Union>, accessed August 29, 2022.

¹¹ Data Quest, 2021-22. Blue Hills Elementary Report. Available at: <https://dq.cde.ca.gov/dataquest/dqcensus/EnrAgeGrd.aspx?cds=43694196067185&aggllevel=School&year=2021-22&ro=y>, accessed August 29, 2022.

¹² Ed Data, 2022. Christa McAuliffe Elementary. Available at: <http://www.ed-data.org/school/Santa-Clara/Cupertino-Union/Christa-McAuliffe-Elementary>, accessed August 29, 2022.

(3) Moreland School District¹³

The Moreland School District (MSD) serves students grades PreK-8 across four elementary schools, two K-8 schools, and one middle school throughout three cities in Santa Clara County. Total district enrollment was 4,043 for the 2021-2022 academic year. Students residing north of Cox Avenue and east of Saratoga Creek are generally served by Baker Elementary School, located at 4845 Bucknall Road, San Jose, CA 95130 and Moreland Middle School, located at 4600 Student Lane, San Jose, CA 95130.

(4) Campbell Union School District¹⁴

Campbell Union School District serves students enrolled in preschool through Grade 8 across its ten elementary schools, eight preschools, and two middle schools. Campbell Union School District's service area encompasses parts of six cities in Santa Clara County. Total district enrollment was 6,230 for the 2021-2022 academic year. Students residing in eastern Saratoga are served by Marshall Lane Elementary School, located at 14114 Marilyn Lane. Total enrollment in Marshall Lane Elementary School was 454 for the 2021-2022 academic year.

(5) Los Gatos-Saratoga Union High School District

Los Gatos-Saratoga Union High School District serves students grades 9-12 across two high school campuses: Saratoga High School and Los Gatos High School. Total district enrollment was 3,382 for the 2021-2022 academic school year. Students residing south of Cox Avenue are generally served by Saratoga High School, located at 203000 Herriman Avenue. Total enrollment in Saratoga High School was 1,248 for the 2021-2022 school year.¹⁵ There are no portions of the City of Saratoga that are served by Los Gatos High School.

(6) Campbell Union High School District

Campbell Union High School District serves students grades 9-12 across five high schools and one alternative school. Total district enrollment was 8,583 for the 2021-2022 academic year. Students residing in northeast Saratoga are served by Prospect High School, located at 18900 Prospect Road. Students residing in eastern Saratoga are served by Westmont High, located at 4805 Westmont Avenue in the City of Campbell. Total enrollment in Prospect High School was 1,510

¹³ Moreland School District (MSD), 2022. Available at: <https://www.moreland.org/>, accessed August 29.

¹⁴ Campbell Union School District, 2022. Available at: <https://www.campbellusd.org/about>, accessed August 29, 2022.

¹⁵ Data Quest, 2021-22. Los Gatos-Saratoga Union High Report. Available at: <https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdLevels.aspx?cde=4369534&aggllevel=district&year=2021-22&ro=y>, accessed August 29, 2022.

for the 2021-2022 academic year. Total enrollment in Westmont High was 1,690 for the 2021-2022 academic year.¹⁶

(7) Fremont Union High School District

Fremont Union High School District serves students grades 9-12 across five high schools. Total district enrollment was 10,296 for the 2021-2022 academic year. Students residing in the northern portions of Saratoga are generally served by Monta Vista High School, located at 21840 McClellan Road in the City of Cupertino, and Lynbrook High School, located at 1280 Johnson Avenue in the City of San Jose. Total enrollment in Monta Vista High School was 1,839 for the 2021-2022 academic year. Total enrollment in Lynbrook High School was 1,781 for the 2021-2022 academic year.

(8) West Valley Community College

West Valley College is a public California Community College offering preparation for transfer to four-year colleges and universities, career programs, Associate of Arts/Associate of Science degree programs, and professional certificates. The 143-acre campus is located at 14000 Fruitvale Avenue in Saratoga and had a student population of approximately 7,842 in the fall of 2021.¹⁷

(9) De Anza Community College

De Anza College is a public California Community College located at 21250 Stevens Creek Boulevard in Cupertino, with an average enrollment of approximately 24,000 students each quarter. The college offers Associate Degree Programs, Certificate Programs, and preparation for transfer to four-year colleges and universities.¹⁸

d. Public Libraries

Santa Clara County operates eight library branches in the cities of Campbell, Cupertino, Gilroy, Los Altos, Milpitas, and Morgan Hill. The Santa Clara County Library District Bookmobile provides personalized, comprehensive library service to people who may have difficulty visiting a community library, including seniors, individuals with physical limitations, children, and geographically remote residents throughout the county.

¹⁶ Data Quest, 2021-22. Campbell Union High Report. Available at: <https://dq.cde.ca.gov/dataquest/dqcensus/EnrGrdLevels.aspx?cde=4369401&aggllevel=district&year=2021-22&ro=y>, accessed August 29, 2022.

¹⁷ West Valley College, 2021. Fast Facts. Available at: <http://westvalley.edu/about/facts.html>, accessed August 29, 2022.

¹⁸ California Community Colleges, 2019. De Anza College. Available at: <https://scorecard.cccco.edu/scorecardrates.aspx?CollegeID=421>, accessed August 29, 2022.

(1) Saratoga Library

The Saratoga Library is located at 13650 Saratoga Avenue. It is one of the eight branches within the Santa Clara County Library District. The library services a diverse cross-section of the community through its programs for children, teens, and adults including book sales and museum passes. The library encompasses a 48,500-square-foot building and was fully remodeled and reopened in 2003.

2. Regulatory Setting

a. State

(1) California Emergency Services Act of 1970

Through the California Emergency Services Act of 1970, the California Office of Emergency Service provides the basis for local emergency preparedness. The Office of Emergency Services is responsible for preparing the California State Emergency Plan and for coordinating and supporting emergency services conducted by local governments. The responsibility for immediate response to an emergency, such as fires, landslides, earthquakes or riots, rests with local government agencies and segments of the private sector, with support services provided by other jurisdictions and/or state and federal agencies. In accordance with their normal operating procedures, the initial response to an emergency will be made by local Fire, Law Enforcement, Medical, or Maintenance (Public Works) districts or departments.

(2) California Fire and Building Code

The Fire and Building Code establishes the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare for the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of this code apply to the construction, alteration, movement enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout the State of California.

(3) California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code. This includes regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

(4) California Code of Regulations

The California Code of Regulations (CCR), is the official compilation and publication of the regulations adopted, amended, or repealed by state agencies pursuant to the Administrative Procedure Act (APA).¹⁹ Title 5 (Education Code) of the California Code of Regulation governs all aspects of education within the state.

(5) Assembly Bill 2926 – School Facilities Act of 1986

The School Facilities Act of 1986, or AB 2926, granted school districts the authority to impose statutory school fees on new development projects. A fee cap was established in 1986 and is adjusted biannually for inflation by the State Allocation Board. Fees associated with new residential and commercial construction were most recently updated in 2022. They stand at \$4.79 and \$0.78 respectively. These fees are referred to as Level One Fees.

(6) Senate Bill 50 – Leroy F. Green School Facilities Act of 1998

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), codified as California Government Code Sections 65995, 65996(a), and 65996(b), authorizes school districts to levy developer fees to offset costs associated with increasing school capacity because of development, including construction or reconstruction of school facilities. The fees are categorized by level. Level One Fees are assessed based on the proposed square footage of residential, commercial/industrial, and/or parking structure uses. Level Two Fees require the developer to provide one-half of the costs of accommodating students in new schools, while the state would provide the other half. Level Three Fees require the developer to pay the full cost of accommodating the students in new schools.

The California State Legislature has determined that school impact fees shall be the exclusive method of mitigating the school facilities' impacts of a project or plan, has set limits on school impact fees, and has determined that payment of school impact fees shall be deemed to provide full and complete school facilities mitigation. SB 50 also prohibits local agencies such as the City of Saratoga from denying land use approvals on the basis that school facilities are inadequate.

(7) The Mello-Roos Communities Facilities Act of 1982

The Mello-Roos Community Facilities Act, Government Code Section 53311 et seq., provides an alternative method of financing certain public capital facilities and services through a special property tax. This State law empowers local agencies to establish Community Facilities Districts

¹⁹ Office of Administrative Law. California Code of Regulations (CCR). Available at: <https://oal.ca.gov/publications/ccr/>, accessed August 3, 2022.

to levy special taxes for facilities for public infrastructure such as roads, schools, and libraries. The creation of a Mello-Roos District requires the approval of two-thirds of the voters.

b. Local

(1) Santa Clara County Fire Department Strategic Plan

The 2020-2022 Santa Clara County Fire Department Strategic Plan provides an analysis of the existing programs and services, describes critical issues and service gaps, and identifies goals and objectives in order to maintain and enhance current levels of service and emergency preparedness.

- *Strategic Objective 2.4:* Prepare for rapid population growth.

Outcome Measurements

- Goal 1.1.4: First unit arrival at structure fires, vegetation fires and other crisis incidents within the time goals outlined in Table 1.1.
- Goal 1.2.1: Obtain field ROSC rate for cardiac arrest at or above the national average (ROSC Data).
- Goal 1.1.2: Contain structure fires to the room of origin at or above current published national average percentage.

Supporting Objectives

- Keep annual unit commitment factor percentage below 30 percent for all units.
- Plan for facilities that align with projected staffing levels, reflected in the five-year Capital Improvement plan.
- Develop a succession plan for non-safety positions.
- Review funding sources for new impacts.
- Explore uniform fee structure for Fire Prevention permits.
- Participate in City General Plan updates.

(2) Santa Clara County Community Wildfire Protection Plan

The Santa Clara County Community Wildfire Protection Plan (CWPP) outlines goals for creating a safer wildland urban interface community. To provide more specific wildfire mitigation projections, communities served by Santa Clara County Fire Department are organized by individual agency or community level annexes based on jurisdiction. Fire protection services for

the City of Saratoga are split jurisdictionally into Annex 5, which encompasses the Saratoga Fire Protection District, and Annex 6, which encompasses the entirety of the City of Saratoga.

Applicable wildfire mitigation goals identified in the CWPP for Annex 5 include:

- FR9: Establish assistance program for hazardous fuel reduction for physically or fiscally challenged parcels; and
- FR11: Create sustainable programs for creating defensible space at the parcel level.

Applicable wildfire mitigation goals identified in the CWPP for Annex 6 include:

- SI1: Retrofit/eliminate flammable roofs;
- SI5: Adopt landscape standards for recommended plant landscape materials; and
- SI12: Access and improve accessibility to property.

(3) Santa Clara County Library Strategic Plan

In 2008, the Santa Clara County Library system adopted a Strategic Plan.²⁰ The intention of the Strategic Plan is to create, clarify, and focus on how the Library should invest its resources based on the identified wants, preferences, and needs of its current users as well as create opportunities to expand its user base. The primary goals focus on increasing the library's technology; increasing access to the library's physical space; and enhancing the ability of patrons to navigate and fully utilize the library's resources.

(4) Saratoga General Plan

The existing Saratoga General Plan includes several relevant goals, policies, and implementation measures (IM) that assist in reducing or avoiding impacts to public services including:

Land Use Element

Policy LU-3.1: The City shall consider the economic impact of all land use decisions on the City budget through the preparation of fiscal impact analyses for major development proposals.

Policy LU-3.2: The City shall adopt regulations authorizing exactions in the form of improvements or fees required from developers to compensate the City for their fair share of direct and indirect economic effects that arise from proposed development and to insure implementation of the General Plan.

²⁰ Santa Clara County Library Strategic Plan, adopted October 23, 2008. Available at: https://www.sccl.org/SCCLD/media/About/sccl_strategic_plan.pdf, accessed December 21, 2018.

IM LU-3.a: Revise the Municipal Code to include requirement for a fiscal analysis for major development proposals as part of the subdivision and conditional use permit process.

IM LU-3.b: Continue to update the fees schedule on a yearly basis to compensate the City for economic effects of development.

Policy LU-14.1: Land shall not be annexed to Saratoga unless it is contiguous to the existing city limits, within the Sphere of Influence, and it is determined by the city that public services can be provided without unreasonable cost to the City and dilution of services to existing residents.

(5) Safety Element

Policy SAF-4.2: The City shall coordinate with the Santa Clara County Fire Safe Council on preventing and reducing future losses from wildfires.

IM SAF-4.2a: The City shall coordinate with the Santa Clara County Fire Department, and surrounding hillside communities on the preparation and implementation of a Community Wildfire Protection Plan.

Policy SAF-4.4: The City shall encourage all property owners to install an early warning fire alarm system on a voluntary basis where such owners are not otherwise required to do so.

Policy SAF-4.6: The City shall coordinate with the Santa Clara County Fire Department on the need for additional fire prevention regulations for the built up, populated areas of the City.

(6) Saratoga Municipal Code

All developments within Saratoga must comply with the City of Saratoga Municipal Code. The code chapters with specific applicability to public services are in Chapter 15: Zoning Regulations and Chapter 16: Building Regulations.

Chapter 15: Zoning Regulations

Article 15-35; Section 15-35.040 (Design standards for off-street loading spaces)

Off-street parking facilities shall comply with the following standards:

(d) The width of the driveway within a single-family residential district shall be a minimum of twelve feet or greater, as required by the Fire District having jurisdiction. The width of the driveway in all other zoning districts shall be as required by the Fire District having jurisdiction.

Article 15-46; Section 15-46.055 (Required improvements)

The design criteria specified in Section 15-46.040 may be made subject to conditions reasonably related to the project and to the findings required for approval. Conditions may include, but are not limited to, the following:

- (i) Improvements to water delivery systems as required by the Fire District or Water Company to ensure both adequate domestic and fire flow.
- (j) Installation of fire hydrants as required by the Fire District having jurisdiction.

Chapter 16: Building Code

Chapter 16 of the Saratoga Municipal Code adopts the 2016 California Building, Plumbing, Mechanical, Electrical, Green Building, and Fire Codes by reference and establishes local procedural requirements and permit fees.

(7) Saratoga Climate Action Plan (2030)

In 2020, the City of Saratoga adopted a Climate Action Plan. The Climate Action Plan serves to outline existing and potential action that the City's government and community members can take to address climate change. Actions included in the Climate Action Plan include increasing energy efficiency in buildings, electrifying buildings and appliances, accelerating zero emission vehicle adoption, and using clean, renewable energy sources.

(8) Saratoga Emergency Operations Plan

The City of Saratoga has an Emergency Operations Plan, which provides an overview of prevention and operational concepts, identifies components of the City's emergency management organization within the Standardized Emergency Management System (SEMS) and by extension, the National Incident Management System (NIMS) and describes the overall responsibilities of the federal, state and county entities and the City for protecting life and property and assuring the overall wellbeing of the population.

3. Impacts and Mitigation Measures

Impacts to public services resulting from implementation of the project are discussed below. Impacts to public services were assessed using the significance criteria established by the CEQA guidelines, as well as State, and local plans, regulations, and ordinances. This analysis identifies potential impacts to fire protection, police protection, schools, and libraries based on development anticipated from buildout of the project. Potential impacts to parks are addressed in *Section IV.K, Parks and Recreation*.

a. Significance Criteria

According to Appendix G of the CEQA Statutes and Guidelines, implementation of the project would result in a significant impact on the City's public services if:

- Result in substantial adverse physical impacts associated with the provisions of new or physically altered governmental facilities, need for new governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
 - Fire Protection;
 - Police Protection;
 - Schools;
 - Parks; or
 - Other Public Facilities.

b. Analysis and Findings

The following discussion describes the potential impacts associated with public services that would result from the project.

(1) Fire Protection Services

The development of up to 1,994 units in the planning area would result in an increase in demand for fire protection and emergency services. However, the increased property taxes from development facilitated by the project would result in additional funding being available to the SCCFD to accommodate future growth. Furthermore, future development projects under the project would be required to meet all City of Saratoga and California State Fire Code requirements for sprinkler systems, alarms, fire flow, access, and fire hydrant spacing, in accordance with relevant fire regulations. Also, Section 16-20.050 (subsection 105.1.7) of the Saratoga Municipal Code identifies the permit fees and plan review fees for fire hydrants, fire extinguishing systems, and fire alarm systems that must be paid to the Fire Department to offset anticipated costs related to this service. Moreover, the Department's regional response model ensures that residents are adequately served and responded to in the event of an emergency. SCCFD staff have indicated that no additional facilities are necessary to serve the project. Should, in the future, it be determined that additional facilities are necessary, the project would be subject to environmental review under CEQA.

While development under the project would result in an increase in fire protection and emergency medical response services, new or physically altered governmental facilities would

not be required; therefore, the project's impact on fire protection services would be less than significant.²¹

(2) Police Services

The City of Saratoga contracts with the Santa Clara County Sheriff's Office to provide police services. Police services provided by the Santa Clara County Sheriff's Office to the City of Saratoga are based out of the West Valley Patrol substation located in the City of Cupertino at 1601 S. De Anza Boulevard #148.

The Sheriff's Office does not utilize a police officer-to-resident ratio but instead measures performance by evaluating monthly target response times for priority calls. In 2021, the Sheriff's Office met its targeted response times for Priority 1, Priority 2, and Priority 3 calls in the City of Saratoga. While providing services to more residents and locations would naturally require more officers and potentially impact response times, the Sheriff's Office does not foresee any project impacts related to response times. The Sheriff's Office also does not anticipate the project would result in the need for additional police facilities.²²

In addition to the personnel contracted to provide police services through the Santa Clara County Sheriff's Office, the City of Saratoga has several registered Neighborhood Watch Groups. The Neighborhood Watch Groups help to maintain a healthy and vibrant neighborhood, as well as aid local law enforcement in their efforts to stop crime. The City also holds Crime Prevention Forums to prevent home and vehicle burglary and encourage the reporting of suspicious activity. The intent of these forums is to teach residents about crime prevention, promote collaboration in reporting suspicious activities, reduce crime, and support relationship-building between neighbors.

While development under the project could result in an increase in police services, as described above, the project would not require new police facilities. Therefore, the project impact on police services would be less than significant.

(3) School Services

As stated in *Section IV.L, Population and Housing*, implementation of the residential development under the project could result in the creation of 1,994 new housing units in Saratoga if all identified Housing Inventory Sites are developed at the maximum allowable density. Table IV.M-2 outlines the total units planned for in the Housing Element in each school district.

²¹ Suwanna Kerdkaew, Fire Chief, Santa Clara County Fire Department. 2022. Personal communication with Urban Planning Partners. December 20.

²² Urena, Captain Rich, Office of the Sheriff, Santa Clara County, 2022. Written Communication with Urban Planning Partners. August 8, 2022.

TABLE IV.M-2 STUDENT GENERATION BY HOUSING UNITS

School District	Grades Served	# of Housing Units Served by District	Project Estimated Student Generation ^a
Saratoga Union School District	TK-5	423	212 ^b
Cupertino Union School District	KG-8	392	118 ^e
Moreland School District	KG-8	984	492 ^b
Campbell Union School District	KG-8	195	98 ^c
Los Gatos-Saratoga Union School District	9-12	470	101 ^f
Campbell Union High School District	9-12	1086	109 ^g
Fremont Union School District	9-12	439	88 ^d
Total Students Generated			1,218

^a Student generation refers to the number of students of each grade span that a district determines are typically generated by different dwelling unit types within the district.
^{b-d} Calculated using statewide average Student Yield Factors; 0.5 students per dwelling unit for Elementary School District, 0.2 student per dwelling unit for High School District.
^e Avg. student generation factor = 0.3.
^f Avg. student generation factor = 0.2.
^g Avg. student generation factor = 0.1.
 Source: Saratoga Union School District (SUSD), 2022.

As shown in Table IV.M-2, buildout of the housing units identified in the Housing Element could generate an estimated 1216 students, consisting of 919 elementary/middle school students and 297 high school students. These estimates, however, assume that all students would enroll in the public school which serves their places of residence and do not account for enrollment in private schools. Also, the new units will occur over time so not all the students will be attending schools immediately or at the same time.

The pattern and amount of development envisioned by the project would not result in a significant impact since new development provides impact mitigation fees to offset the impacts to school facilities. The California State Legislature, under SB 50, has determined that payment of school impact fees shall be deemed to provide full and complete school facilities mitigation. All development facilitated by the project would be required to pay the school impact fees adopted by each school district, and this requirement is considered to fully mitigate the impacts of the proposed project on school facilities. With payment of fees, impacts associated with implementation of the project would result in a less-than-significant impact related to schools.

(4) Library Services

Currently, there are no plans for expansion or new space. However, furnishing will be refreshed every three years per the Ten-Year Capital Management Plan (CMP). The CMP outlines all

maintenance-related projects in excess of \$25,000 anticipated over the next 10 years.²³ Furnishings to be refreshed every three years include interior paint, exterior paint, public furniture, and interior space in addition to HVAC replacement and miscellaneous emergency work. Construction and/or operation of the project may result in the need for additional services such as passport processing or student lunch programs, which would require two-to-three additional staff in the future. Otherwise, construction and/or operation of the project would not result in the need for additional library facilities.²⁴ As such, impacts associated with implementation of the project would result in a less-than-significant impact related to library services.

c. Cumulative Public Services Impacts

This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development, would result in a cumulatively significant impact with respect to fire protection facilities, police protection facilities, school facilities, or library facilities. This analysis then considers whether or not the incremental contribution of the impacts associated with the implementation of the project would be significant. Both conditions must apply in order for a project's cumulative effects to rise to the level of significance.

(1) Fire Protection Services

The geographic context for the analysis of cumulative impacts related to fire protection services includes the SCCFD service area, which comprises the Cities of Saratoga, Campbell, Los Altos, and Monte Sereno, and the towns of Los Altos Hills and Los Gatos. A significant cumulative environmental impact could result if the growth envisioned as part of the project exceeded the ability of SCCFD to adequately serve their service area or required the construction of new facilities to serve the city.

Development envisioned by the project would contribute to an incremental cumulative increase in the demand for fire protection services within the SCCFD service area. However, as discussed under Fire Protection Services above, implementation of the project would not create a need for new or physically altered facilities in order for the SCCFD to provide fire protection services to its service area. Furthermore, the increased property taxes from development facilitated by the project, as well as the cumulative development projects, would result in additional funding being available to the SCCFD to allow for future growth.

As previously discussed, development facilitated by the project would be required to comply with the goals, policies, and implementation measures in the project as well as the Saratoga Municipal

²³ Jennifer Weeks, 2021. Written communication to Joint Powers Authority Board, October 28.

²⁴ Santa Clara County Library District, 2022. Written communication to Urban Planning Partners, July 5.

Code, to ensure that fire protection services are adequate as future development is proposed. All cumulative projects within the SCCFD service area would be required to comply with City ordinances that address fire protection services. SCCFD is discussing the possibility for a new facility that would be located in Cupertino. However, that project is not currently proposed and would be subject to CEQA review at such time it is proposed. Therefore, impacts of the project on fire protection services are not cumulatively considerable and the cumulative impact would be less than significant.

(2) Police Protection Facilities

The geographic context for the analysis of cumulative impacts related to police protection facilities includes the Santa Clara County Sheriff's Office service area, which comprises the Cities of Saratoga and Cupertino, the Town of Los Altos Hills, and the unincorporated areas of Santa Clara County. A significant cumulative environmental impact could result if the growth envisioned in the project exceeded the ability of the Sheriff's Office to adequately serve their service area or required the construction of new facilities to serve the city.

Development envisioned by the project would contribute to an incremental cumulative increase in the demand for police protection services within the Santa Clara County Sheriff's Office service area. However, as discussed under *Police Services* above, implementation of the project would not create a need for new or physically altered facilities in order for the Sheriff's Office to provide police protection services to its service area.

Since police protection services in Saratoga are provided through a Memorandum of Understanding between the City of Saratoga and the Santa Clara County Sheriff's Office, changes and growth anticipated under the project would not have any cumulative impact beyond Saratoga's sphere of influence.

As previously discussed, development facilitated by the project would be required to comply with the goals, policies, and implementation measures in the project as well as the Saratoga Municipal Code, to ensure that police protection services are adequate as future development is proposed. All cumulative projects within the Santa Clara County Sheriff's Department service area would be required to comply with City ordinances and General Plan policies that address police protection services. Therefore, impacts of the project on police protection services are not cumulatively considerable and the cumulative impact would be less than significant.

(3) School Facilities

The geographic context for the analysis of cumulative impacts related to school facilities includes the four elementary school districts, three high school districts, and two community college districts that serve Saratoga and the surrounding cities.

Development envisioned by the project would contribute to an incremental cumulative increase in the demand for school facilities within the nine school districts serving the city. However, as discussed under *School Services* above, all development facilitated by the project will be required to pay the school impact fees adopted by each school district, and this requirement is considered to fully mitigate the impacts of the project on school facilities.

Regional growth resulting from past, present, and reasonably foreseeable projects would result in increased demand for additional school facilities within all nine school districts serving the city of Saratoga. Similar to development in Saratoga, the schools are expected to receive development impact fees from cumulative development within other jurisdictions. The payment of school impact fees would ensure that school facilities can accommodate future students. Therefore, impacts of the project on school facilities are not cumulatively considerable and the cumulative impact would be less than significant.

(4) Library Facilities

The geographic context for analysis of cumulative impacts on library facilities includes the Santa Clara County Library District service area, which serves Saratoga, Campbell Cupertino, Los Altos, Los Altos Hills, Milpitas, Monte Sereno, Morgan Hill, Gilroy, Milpitas, and unincorporated Santa Clara County. A significant cumulative environmental impact could result if the growth envisioned in the project exceeded the ability of Santa Clara County Library District to adequately serve their service area or required the construction of new facilities to serve the city.

Development under the project would contribute to an incremental cumulative increase in the demand for library facilities serving the city. The Santa Clara County Library Strategic Plan accounts for the entire Santa Clara County Library District service area and provides a basis for analyzing the most efficient allocation of funds both for the district as a whole as well as among the different libraries within their service area. This would not only allow for adequate funding to satisfy demand at the Saratoga library but would ensure that surrounding libraries are adequate to fulfill demand. For these reasons, potential project impacts on library facilities are not cumulatively considerable and the cumulative impact would be less than significant.

N. TRANSPORTATION

This section assesses the potential for the project to result in significant impacts on transportation. This section first includes a description of the existing environmental setting as it relates to transportation, and provides a regulatory framework that discusses applicable federal, State, and local regulations.

1. Setting

This section describes the existing conditions for transportation facilities in the city, including roadway network, transit service, and pedestrian, and bicycle facilities.

a. Existing Road Network

Regional and local roadways serving the Saratoga at the time of the Notice of Preparation are described below.

(1) Regional Access

Regional roadway access to Saratoga is provided by three major freeways: State Route (SR-) 85, Interstate 280 (I-280), and SR-17. Only SR-85 provides direct access to Saratoga via interchanges at Saratoga Avenue and South De Anza Boulevard (in Cupertino). Access to SR-17 is provided by Saratoga-Los Gatos Road, which is designated as SR-9, and via SR-85. SR-85 and SR-17 both provide access to I-280. Lawrence Expressway also serves regional traffic and links Saratoga to the cities of Santa Clara and Sunnyvale.

(2) Local Access

Local access in the city is provided by Boulevards and Connectors. Boulevards include Allendale Avenue, Fruitvale Avenue, Prospect Road, Quito Road, Saratoga-Los Gatos Road, and Saratoga Sunnyvale Road. Connectors include Big Basin Way, Cox Avenue, Fruitvale Avenue, Herriman Avenue, Miller Avenue, Pierce Road, Prospect Road, Quito Road, Saratoga Avenue, and Sobey Road. The roadway network serving Saratoga, including roadway classifications from the 2010 General Plan, is shown in Figure IV.N-1.

b. Existing Transit Services

Existing bus service in Saratoga is provided by the Santa Clara Valley Transportation Authority (VTA). The bus routes that provide services within the city are shown in Figure IV.N-2 and described in Table IV.N-1.

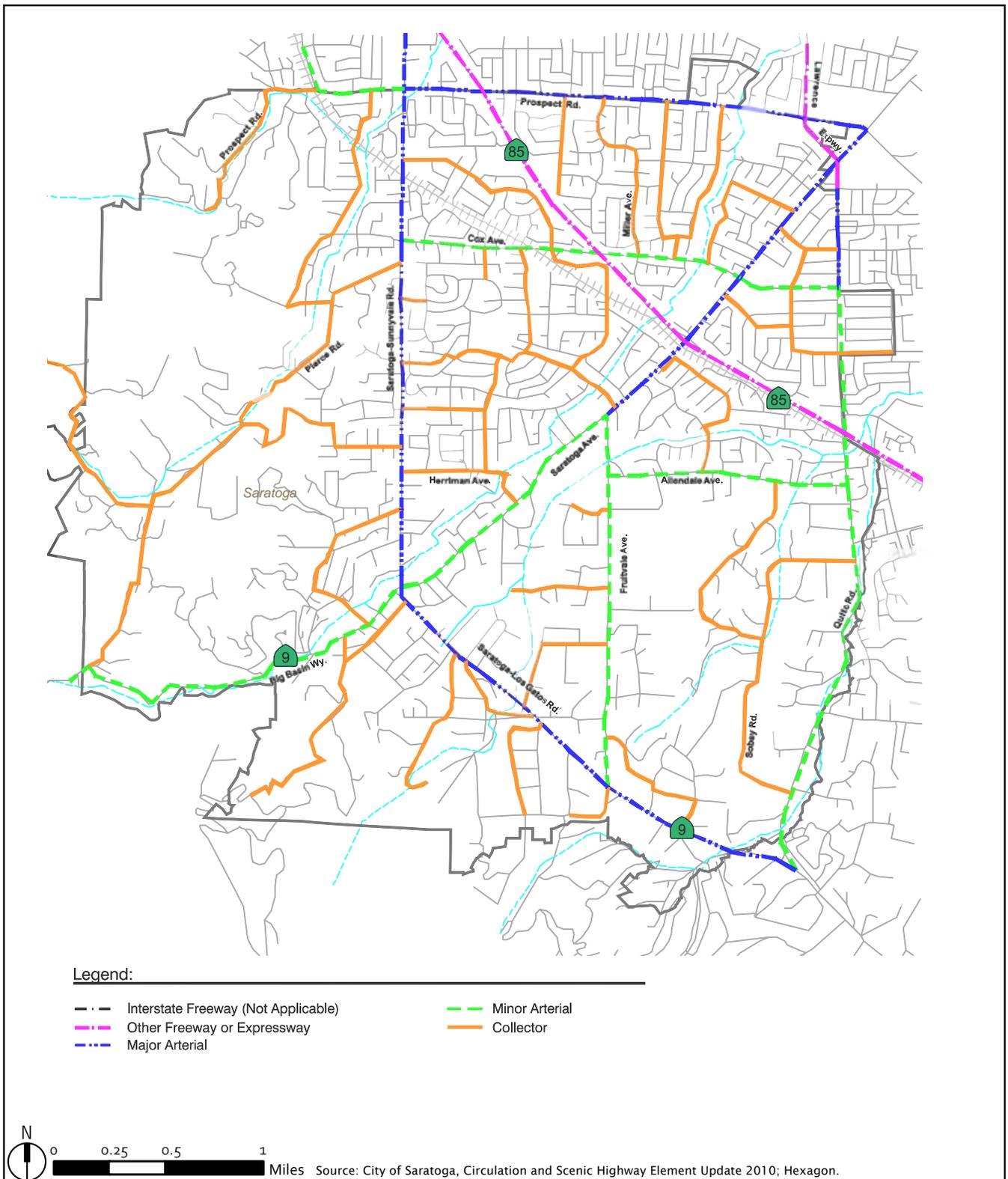


Figure IV.N-1
Roadway Classification

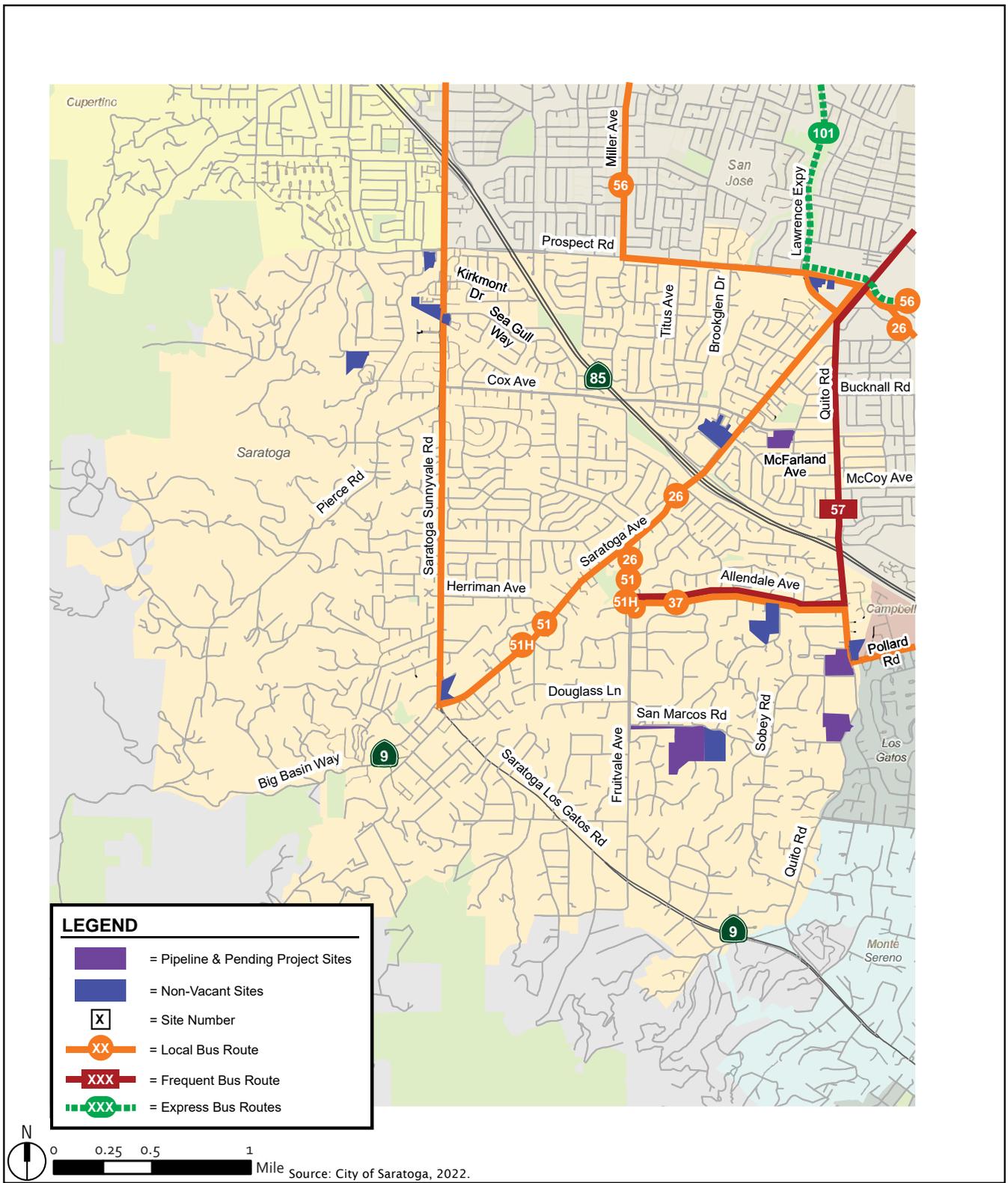


Figure IV.N-2
Transit Services

TABLE IV.N-1 TRANSIT SERVICE IN THE STUDY AREA

VTA Bus Route	Route Description	Weekday Hours of Operation	Headways ^a (Minutes)
Frequent Route 26	West Valley College – Eastridge	5:19 AM - 11:09 PM	15
Local Route 37	West Valley College – Capitol Station	6:25 AM - 7:04 PM	60
Local Route 51	Moffett Field – West Valley College	6:09 AM - 7:18 PM	60
Local Route 51H	Moffett Field – De Anza College	7:00 AM - 9:39 AM 3:01 PM - 6:48 PM	60
Local Route 56	Lockheed Martin – Tamien Station	5:22 AM - 10:40 PM	25 - 35
Frequent Route 57	Old Ironsides Station – West Valley College	5:48 AM - 10:48 PM	15 - 20
Express 101	Camden & SR-85 – Stanford Research Park	6:16 AM - 8:21 AM 4:10 PM - 6:34 PM	50 - 60

^a Headways during weekday peak periods as of May 2022.

Source: Valley Transportation Authority (VTA), 2022. VTA website, summarized by Hexagon. 2022.

c. Existing Bicycle Network

Existing bicycle facilities based on the Santa Clara County Existing Bikeways Map (2020) are shown in Figure IV.N-3. The City’s existing bicycle facilities are classified according to the State’s system of classification as identified in the Saratoga General Plan Circulation and Scenic Highway Element:

- Class I bike paths and trails are separated facilities designated for exclusive use of bicycles and pedestrians and are physically separate from roadways by space or barriers.
- Class II bicycle lanes are lanes adjacent to the outer travel lanes reserved for the exclusive use of bicycles and designated with special signing and pavement markings.
- Class III bicycle routes are roadways recommended for bicycle use and often connect to bike lanes and bike paths. Routes are designated with signs only and do not have separate bike right-of-way or lane striping.

Existing bicycle facilities within the city are listed below.

- Class I multi-use paths along Lawrence Expressway north of Graves Avenue and English Drive and Joe’s Trail, which runs along the Union Pacific Railroad (UPRR) tracks between Saratoga Sunnyvale Road and Saratoga Avenue.
- Class II bikeways/on-street bike lanes are present along Prospect Road from Stelling Road to Saratoga Avenue, Saratoga-Sunnyvale Road from Prospect Road to Saratoga Avenue, Saratoga-Los Gatos Road from Saratoga Avenue to Santa Cruz Avenue, Herriman Avenue,

Miller Avenue from Summerville Drive to Melinda Circle, Quito Road from Saratoga Avenue to Allendale Avenue, and Cox Avenue. Prospect Road, between Saratoga-Sunnyvale Road and Lawrence Expressway, and Saratoga Avenue south of Fruitvale Avenue have striped buffered bike lanes.

- Class III bike routes are present along Fruitvale Avenue, Allendale Avenue, Cox Avenue after Paseo Presada, Wardell Road, Miller Avenue, Big Basin Way/SR-9, Mt. Eden Road, and Quito Road south of Allendale Avenue.
- Saratoga also has one bicycle bridge across SR-85 from Azule Park to Kevin Moran Park, connecting Goleta Avenue and Scully Avenue. This bridge is also accessible to pedestrians.

d. Existing Pedestrian Facilities

Pedestrian facilities in the City of Saratoga consist of sidewalks, curb ramps, crosswalks, and pedestrian signals at signalized intersections. There are rapid rectangular flashing beacons (RRFBs) at intersections along boulevards, and connectors, such as along Cox Avenue, Los Gatos-Saratoga Road/SR-9, Quito Road, and Saratoga Avenue.

Residential areas comprised of single-family homes in the City of Saratoga generally lack pedestrian facilities like sidewalks and crosswalks. Most major streets in the city have pedestrian facilities: Prospect Road, Saratoga Sunnyvale Road, Saratoga Los Gatos Road, Saratoga Avenue, Cox Avenue, Quito Road, Allendale Avenue, and Pollard Road. Continuous sidewalks are present on at least one side of these major streets.

Other pedestrian facilities include multi-use trails such as Joe's Trail at Saratoga de Anza, the Montauk Drive Connection, and the Saratoga Avenue and Fruitvale Avenue connection. The Montauk Drive connection starts from Herriman Avenue at Saratoga Avenue and ends next to Redwood Middle School at Montauk Drive. The path connecting Saratoga Avenue and Fruitvale Avenue extends through the Saratoga Library and Heritage Orchard. Joe's Trail is a multi-use trail in Saratoga reducing bicycle and pedestrian trip lengths by connecting Saratoga-Sunnyvale Road to Saratoga Avenue. The PG&E easement parallel to the UPRR railroad tracks also has pedestrian bridges crossing Rodeo Creek and Saratoga Creek. Additionally, Saratoga also has a pedestrian bridge across SR-85 from Azule Park to Kevin Moran Park, connecting Goleta Avenue and Scully Avenue. This bridge is also accessible to bicyclists.

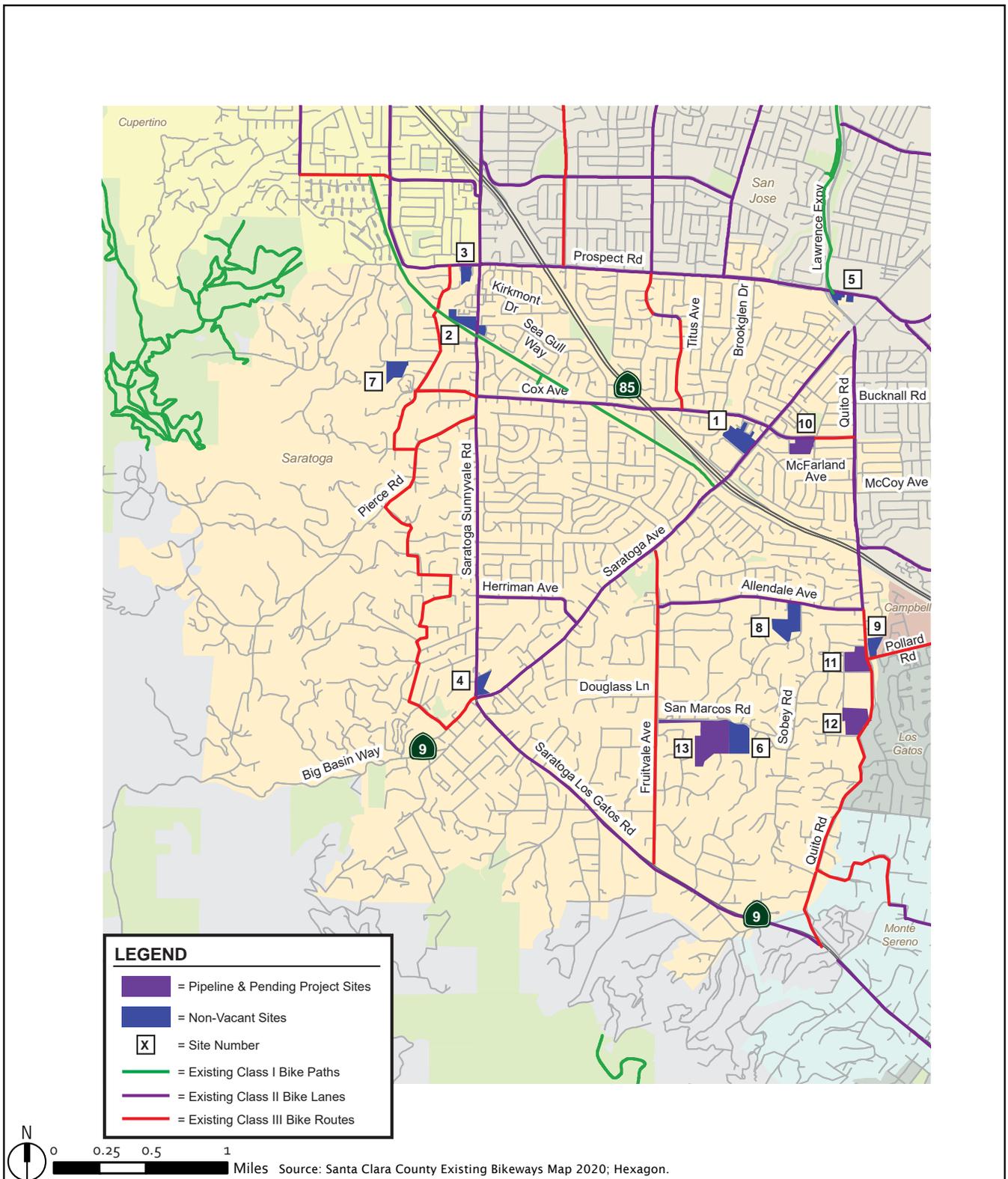


Figure IV.N-3
Existing Bike Facilities

2. Regulatory Setting

This section outlines the existing plans, policies, and regulations that relate and apply to the project area at the local, regional, and State levels.

a. State

(1) California Department of Transportation

California Department of Transportation (Caltrans) has authority over the State highway system, including freeways, interchanges, and arterial State Routes. Caltrans approves the planning, design, and construction of improvements for all State-controlled facilities including SR-85 and the associated interchanges located in Saratoga. Caltrans requirements are described in their Guide for the Preparation of Traffic Impact Studies¹ which covers the information needed for Caltrans to review the impacts on State highway facilities including freeway segments.

Senate Bill 743

Senate Bill (SB) 743 created a process for changing the analysis of transportation impacts under CEQA, with the analysis focusing on a project's vehicle miles traveled (VMT) rather than impacts on intersection level of service (LOS).

The CEQA Guidelines now identify VMT as the most appropriate metric for evaluating a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay and congestion, as measured by LOS and other similar metrics, generally no longer constitute a significant environmental effect related to traffic under CEQA (Public Resources Code Section 21099, subdivision [b][3]). It should be noted that the Saratoga General Plan includes LOS standards, therefore this EIR evaluates the project's compliance with applicable plans and policies in Section 3b. The City prepared a LOS analysis to evaluate the project's consistency with LOS standards and for general informational purposes and it can be found in *Appendix D, Non-CEQA Level of Service Analysis*, of this EIR.

¹ California Department of Transportation (Caltrans), 2001. Guide for the Preparation of Traffic Impact Studies.

b. Regional

(1) Santa Clara County Congestion Management Program (CMP)

VTA is responsible for maintaining the standards of the CMP roadway system in Santa Clara County).² VTA strives to maintain LOS E on all CMP monitored facilities. Based on VTA's Guidelines, a CMP intersection shall be included in a transportation analysis if a proposed development project would add 10 or more peak-hour vehicles per lane to any intersection movement; a CMP freeway segment shall be included in a transportation impact analysis (TIA) if a proposed development project would add traffic equal to at least 1 percent of the freeway segment's capacity.³

c. Local

(1) Saratoga General Plan

The Saratoga General Plan includes the following relevant policies and implementation measures (IMs) that assist in reducing or avoiding potential impacts related to transportation.

Circulation and Scenic Highway Element

Overall Transportation System

Goal Cl.1a: Provide a balanced, multi-modal transportation system in Saratoga to maintain mobility for all segments of the community and to maintain the City's small town character.

Goal Cl.1b: Encourage healthy, active living, reduce traffic congestions and fossil fuel use, and improve the safety and quality of life of residents of the City of Saratoga by providing safe, convenient, and comfortable routes for walking, bicycling, and public transportation.

CI-Policy-1.1: The City shall encourage and participate in the implementation of a variety of modes of transport to serve Saratoga.

CI-Policy-1.2: Encourage development of cooperation strategies to support local and regional transportation solution and improvements.

CI-Policy-1.3: Provide safe, convenient and comfortable routes for walking, bicycling, and public transportation that encourage increased use of these modes of transportation, enable convenient travel as part of daily activities, improve the public welfare by addressing a wide

² Santa Clara Valley Transportation Authority (VTA), 2017. Congestion Management Program Document.

³ Santa Clara Valley Transportation Authority (VTA), 2014. Transportation Impact Analysis Guidelines.

array of health and environmental problems, and meet the needs of all users of the streets, including children, older adults, and people of disabilities.

Street System and Standards of Service

Goal CI.2a: Facilitate the safe movement of vehicular traffic within and through the City, taking into consideration the environmental, historical, and residential integrity of the City to maximize benefits and minimize adverse impacts and costs.

Goal CI.2b: For traffic management and street design, balance the efficiency of vehicular traffic with the safety and livability of residential areas.

Goal CI.2c: Strive to establish a transportation system of streets that accommodates all travel modes and users within the street right-of-way to the maximum extent possible.

CI-Policy-2.1: Make efficient use of existing transportation facilities and strive to reduce the total number of vehicle miles traveled through the arrangement of land uses, improved facilities for non-automobile modes, and enhanced integration of various transportation systems.

CI-Policy-2.2: Maintain and develop a City-wide street system that manages vehicular access, but also provides for emergency access.

CI-Policy-2.3: Maintain a minimum of Level of Service (LOS) D operations standard at all signalized street intersections and roadway segments that are under City jurisdiction except for intersections and roadways included in the Santa Clara County Congestion Management Program (which are held to a LOS E standard), and as otherwise specified pursuant to Policy 2.4.

CI-Policy-2.4: Accept Level of Service E or F operations on City-maintained roadways after finding that: 1) no practical and feasible improvements can be implemented to mitigate the lower levels of service, or 2) vehicle capacity enhancements would conflict with existing or planned bicycle, pedestrian, or transit facilities and services. A proposed development that exacerbates LOS E or F operations and causes a significant intersection impact should also be considered for approval if it will provide a clear, overall benefit to the City (e.g., library expansion or relocation, new community center).

CI-Policy-2.5: Ensure that new development or redevelopment projects provide adequate property dedication to accommodate future roadway and multi-modal access improvements at key intersections and other potential conflict areas.

CI-Policy-2.6: Efficiently manage traffic flow on major and minor arterial roadways to discourage through traffic in residential neighborhoods.

CI-Policy-2.7: Align and design collector streets to minimize adverse impacts on the character of residential neighborhoods through which they pass, while functioning efficiently to collect and distribute traffic.

CI-Policy-2.8: Design new local streets to reduce travel distance, promote alternative modes, and provide a more even distribution of traffic.

CI-Policy-2.9: Establish the primary access for major traffic generators on arterial roadways and design overall access to minimize traffic intrusion to residential neighborhoods.

CI-Policy-2.10: Strive to maintain traffic volumes and speeds on collector and local streets that are compatible with the character of the adjacent land uses, the function of the street, and bicycle and pedestrian access.

CI-Policy-2.11: Protect the integrity of and improve existing hillside streets by planning future development according to existing street function.

CI-Policy-2.12: Focus future improvements on the most congested intersections to maintain an acceptable level of mobility for all modes of transportation.

CI-Policy-2.13: Require development projects to mitigate and reduce their respective traffic and parking impacts by implementing practical and feasible street improvements to improve multi-modal access.

CI-Policy-2.14: Coordinate with the Santa Clara Valley Transportation Authority (VTA) to comply with the Congestion Management Program (CMP) Guidelines for CMP-designated facilities. Should the CMP-designated facilities degrade below the CMP standard of Level of Service E, the City will prepare a Deficiency Plan for the deficient facilities per the VTA's requirements.

CI-Action-2.1: Continue to use the Capital Improvement Program to project and implement needed improvements to the street system.

CI-Action-2.2: Implement roadway and signal timing modifications to improve operations and enhance safety (e.g., lengthen turn pockets, adjust left-turn phases, widen lanes).

CI-Action-2.3: Establish street and driveway accessibility requirements for all streets designated as a major or minor arterial roadway as shown on Figure C-2. Ensure that

driveway or street access does not substantially impede arterial traffic flow as part of the City review process for individual development projects.

CI-Action-2.4: Install coordinated signal systems on all major arterial roadways in the City to improve traffic flow as appropriate. Funding should be obtained from all available City, County, State and Federal funding sources, and developer contributions.

CI-Action-2.5: Evaluate the need for upgrading or enhancing intersection control (e.g., signalization, stop signs) at existing intersections on arterial roadways and collector streets to improve overall access and circulation.

CI-Action-2.6: Install traffic signals to serve existing and projected traffic demand, provide acceptable traffic operations issues, and enhance pedestrian safety.

CI-Action-2.7: Require a transportation analysis for all development projects resulting in 25 or more net new peak-hour trips. As appropriate, the analysis shall identify potential impacts to intersection and roadway operations, project access, and alternative travel modes, and shall identify feasible improvements or project modifications to reduce or eliminate impacts. City staff shall have the discretion to only require focused studies regarding access, sight distance, and other operational and safety issues, or to require detailed studies that generate fewer peak hour trips.

CI-Action-2.8: Evaluate development proposals and design roadway improvements based on established Level of Service standards without negatively affecting travel by other modes, and to be in conformance with Valley Transportation Agency's Bicycle Technical Guide.

CI-Action-2.9: Require that roadway improvements identified as mitigation measures for development projects be in place prior to issuance of occupancy permits.

CI-Action-2.10: Require new development or redevelopment projects to dedicate property to accommodate needed roadway improvements.

CI-Action-2.11: Identify potential capacity improvements and access modifications to maintain adequate circulation in the vicinity of the Civic Center, West Valley College, Redwood Middle School, the Public Library, St. Andrews School and Sacred Heart.

CI-Action-2.12: Consider paying for improvement costs to serve a development project, as appropriate, where the City's economic development interests may be served.

CI-Action-2.13: Continue to address neighborhood traffic management issues through public review and input provided by the Traffic Safety Commission.

CI-Action-2.14: Design local streets to carry low traffic volumes at low speeds and to function safely while minimizing the need for traffic control devices or enforcement. Physical features should include gentle curves, changes of grade, narrow widths, short lengths, and T-intersections where feasible.

CI-Action-2.15: Design streets to minimize impacts to topography, riparian habitats and wildlife corridors.

CI-Action-2.16: Implement the action programs identified in the Hillside Specific Plan to provide adequate vehicular access consistent with CI-Policy-2.11. Where feasible, improvements will include widening of travel lanes, increasing vertical clearance, installing additional signs, and providing new pavement overlays to improve safety.

Transit

Goal CI.4a: Promote local and regional transit as a viable alternative to automobile travel for destinations within and outside the City.

Goal CI.4b: Promote the use of non-automobile modes of transportation by improving the capacity, safety, accessibility, and convenience of existing and planned transit, bicycle and pedestrian systems.

CI-Policy-4.1: Coordinate with the Valley Transportation Authority to increase service range and frequency within the City per VTA's Transit Sustainability Policy.

CI-Policy-4.2: Install transit improvements to improve service, increase safety, and maintain traffic flow on streets serving as transit routes.

CI-Policy-4.3: Encourage the public school districts, private schools, recreation groups or other operators to develop a local bus system and to expand ride-sharing activities that will help to reduce school-generated vehicle traffic in neighborhoods and on City streets. Bussing should be one of the first measures considered, along with walking and biking, to reduce school-generated traffic before substantial roadway capacity enhancements are implemented.

CI-Policy-4.4: Investigate the feasibility of a local shuttle service within Saratoga to reduce local traffic volumes on City streets and overall parking demand. The feasibility study shall identify potential routes and funding sources.

CI-Action-4.1: Require development projects to dedicate right-of-way for purposes of constructing bus turnouts and/or bus shelter pads on major and minor arterial roadways as appropriate.

CI-Action-4.2: In coordination with the VTA, provide seating and shaded waiting areas at transit stops, with stop locations near entrances of buildings to encourage ridership.

CI-Action-4.3: Coordinate with the Valley Transportation Authority when feasible to provide new fixed route or shuttle service in underserved areas (e.g., Cox Avenue).

CI-Action-4.4: Improve the links of local transportation systems and alternatives such as bicycling and walking with private and public regional transit such as bus transit, light rail, and Caltrain. Bicycle and pedestrian improvements should be funded as Capital Improvement Program projects or through private development projects to further encourage the use of transit.

CI-Action-4.5: Provide information to the public on available alternative transportation choices and routes.

CI-Action-4.6: Encourage local businesses to provide employees with transit passes or other financial incentives to use transit to commute to and from the workplace.

CI-Action-4.7: Recommend potential stop locations for local school bus service and provide minor street and landscaping improvements as appropriate.

CI-Action-4.8: Commission a feasibility study of local shuttle service within Saratoga. Funding for the study should be obtained from federal and state grants/sources and private development projects.

3. Impacts and Mitigation Measures

This section analyzes the impact related to transportation that would result from implementation of the project.

a. Significance Criteria

The thresholds used to determine the significance of impacts related to transportation are based on Appendix G of the CEQA Guidelines. Implementation of the project could have a significant impact on the environment if it would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

b. Analysis and Findings

In 2013, Governor Brown signed SB 743, which added Public Resources Code Section 21099 to CEQA, to change the way that transportation impacts are analyzed under CEQA to better align local environmental review with statewide objectives to reduce GHG emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce VMT in California.

The new law required the Office of Planning and Research (OPR) to develop guidelines to establish criteria for determining the significance of transportation impacts of projects. The guidelines were adopted in December 2018. SB 743 recommends VMT as an appropriate measure for assessing the transportation impact of a project on the environment. VMT refers to the amount and distance of automobile travel attributable to a project. SB 743 states that VMT is a more appropriate measure than automobile delay. For the purposes of this EIR, VMT is expressed on a daily basis for a typical weekday.

Increased VMT leads to several direct and indirect impacts to the environment and human health. Among other effects, increasing VMT on the roadway network leads to increased emissions of air pollutants, including GHGs, as well as increased consumption of energy. Transportation is associated with more GHG emissions than any other sector in California. Making transportation more efficient by reducing VMT per capita is the most effective means to reduce GHG emissions per capita.

(1) Consistency With Program, Plan, Ordinance or Policy Addressing the Safety or Performance of the Circulation System (Criterion 1)

All future development would be subject to and implement City guidelines and General Plan policies applicable to transit, bicycle, and pedestrian facilities.

Specifically, any modifications or new transit, bicycle, and pedestrian facilities would be subject to and designed in accordance with all applicable General Plan policies. The 2010 General Plan CI-Policy-1.1 encourages the implementation of a variety of modes of transport to serve Saratoga; CI-Policy-1.3 provides safe, convenient and comfortable routes for walking, bicycling, and public transportation that encourage increased use of these modes of transportation, enable convenient travel as part of daily activities, improve the public welfare by addressing a wide array of health and environmental problems, and meet the needs of all users of the streets, including children, older adults, and people of disabilities; CI-Policy-2.4 ensures that new development or

redevelopment projects provide adequate property dedication to accommodate future roadway and multi-modal access improvements at key intersections and other potential conflict areas; CI-Policy-4.2 requires coordination with VTA to install transit improvements to improve service, increase safety, and maintain traffic flow on streets serving as transit routes. CI-Policy-4.3 encourages the public school districts, private schools, recreation groups or other operators to develop a local bus system and to expand ride-sharing activities that will help to reduce school-generated vehicle traffic in neighborhoods and on city streets; CI-Action-4.1 requires development projects to dedicate right-of-way for purposes of constructing bus turnouts and/or bus shelter pads on major and minor arterial roadways as appropriate; CI-Action-4.4 requires improving the links of local transportation systems and alternatives such as bicycling and walking with private and public regional transit such as bus transit, light rail, and Caltrain. CI-Action-4.5 provides information to the public on available alternative transportation choices and routes. Policies similar to these are included in the City's 2040 General Plan Updates.

The City's 2010 General Plan Policy CI 2.3 requires maintaining a minimum of LOS D operations standard at all signalized street intersections and roadway segments that are under City jurisdiction except for intersections and roadways included in the Santa Clara County CMP (which are held to a LOS E standard). Although not required by CEQA, a LOS analysis was conducted at intersections in the vicinity of the housing sites as well as three additional intersections for the Circulation and Scenic Highway Element. The intersections would operate at an acceptable LOS per the City's General Plan standards with the proposed new development.

The City is also planning the Prospect Road Improvements Project, which will improve the Prospect Road corridor through the addition of roadway medians and a variety of pedestrian and bicycle improvements. The City anticipates that construction on the project will commence in April 2023 and conclude in May 2024. The city, including the proposed housing sites, are also served by transit as shown in Figure IV.N-2. The transit services in the vicinity of the proposed development include VTA bus routes 51H, 51, 26, 37, 57, 56, and 101. When individual projects are reviewed, any gaps to pedestrian and bicycle infrastructure will be identified and addressed.

The City's 2040 General Plan Updates will include updated Policy CI-2.3 that would require the City to develop, implement, and update the citywide multi-modal TIA guidelines that comply with SB 743 requirements and require development projects to mitigate and reduce their VMT and multi-modal impacts. VMT analysis for the proposed residential development is included in this EIR. The TIA guidelines will also define and provide guidance to maintain an acceptable vehicle LOS, as well as to evaluate pedestrian and bicycle facilities, access to transit, and safety.

Other goal/policy changes as part of the 2040 General Plan Updates would not affect the transportation analysis. Because implementation of the project would be subject to all applicable City guidelines, standards, and specifications, implementation of the proposed residential developments would not conflict with compliance with current LOS standards and adopted

policies, plans, or programs for transit, bicycle, or pedestrian facilities, the effects of the project would be less-than-significant.

(2) Vehicle Miles Traveled (Criterion 2)

This section presents the VMT analysis for future development associated with the project, including the VMT evaluation methodology, results of the VMT analysis, and any potential project impacts and mitigations on VMT.

VMT Thresholds of Significance

The City of Saratoga has not adopted any specific VMT thresholds. The City's 2040 General Plan Updates will include an updated Policy CI-2.3 that will require the City to develop, implement, and update the citywide multi-modal TIA guidelines that comply with SB 743 requirements and require development projects to mitigate and reduce their VMT and multi-modal impacts. The TIA guidelines will include a set of practical and realistic transportation demand management (TDM) measures that can be used by employers and residents in the city to reduce the number of single-occupant vehicle trips. These measures would encourage ride-sharing and transit alternatives.

For the purpose of this analysis, the VMT thresholds were based on OPR's guidelines. Specifically, 85 percent of the existing countywide average daily VMT per resident was assumed as the VMT threshold of significance. Average VMT per resident for the project zones was reported from the Valley Transportation Authority (VTA) Travel Demand Model under cumulative (2040) conditions. If the implementation of the future residential development would generate home-based VMT per resident under cumulative conditions that is higher than 85 percent of the countywide average home-based VMT per resident under existing conditions, the VMT impact would be significant. This threshold was determined based on discussions with City staff and is a city-specific threshold for this project.

VMT Evaluation

Impact TRANS-1: Implementation of the project would generate VMT per resident that is greater than 85 percent of the countywide average VMT per resident. (S)

In order to estimate countywide VMT and VMT for the zones in which future development is planned, the VTA travel demand model was utilized. The VTA model is the best available model to represent travel within the City of Saratoga and serves as the primary forecasting tool for the city. The model is a mathematical representation of travel within the nine Bay Area counties, as well as the Santa Cruz, San Benito, Monterey, and San Joaquin counties. The base model structure was developed by the Metropolitan Transportation Commission (MTC) and further refined by the VTA for use within Santa Clara County. There are four main components of the

model: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) trip assignment. The model uses socioeconomic inputs (i.e., population, income, employment) aggregated into geographic areas, called transportation analysis zones (TAZ) to estimate travel within the model area. The model uses these inputs to generate trips and trip lengths for a variety of trip purposes like home-based work, home-based shopping, home-based social/recreation, home-based school, and non-home-based trips for each TAZ.

The existing VTA model was used to generate the average countywide daily VMT per resident. The VTA model under 2040 conditions was used to develop the daily VMT per resident for the project zones. The 2040 VTA model includes land use growth assumptions for Bay Area regions for year 2040 as provided by the Association of Bay Area Governments (ABAG) and refined by VTA. There are 42 TAZs within the model to represent the City of Saratoga. Within Saratoga, all growth was assumed to be from the project.

As shown in Table IV.N-2, the existing countywide average daily residential VMT per resident is estimated at 13.11; therefore, the VMT per resident threshold of significance (85 percent of the countywide average) is 11.15.

The project includes 162 units that already have planning applications, nine SB 9 units in the pipeline, 46 vacant sites that can be developed with 60 single-family units, 80 SB 9 units not yet in the pipeline, 480 accessory dwelling units (ADUs) that could be built throughout the city, and 1,250 units that are assumed to be built on non-vacant/underutilized sites.⁴

The daily VMT per resident for the city TAZs with project elements was estimated using the 2040 VTA model and is shown on Figure IV.N-4. The 80 SB 9 units and 480 ADU units that could be built anywhere within the city are assumed to be proportionally distributed at the TAZ level. As shown in Table IV.N-2, the Housing Element units are estimated to generate an average residential VMT per resident of 17.90, which is 37.7 percent above the VMT threshold of 11.15. Therefore, the project would cause a significant impact on VMT.

TABLE IV.N-2 VMT ANALYSIS

	Average VMT per Resident^a
Housing Element Units	17.90
VMT per Resident Threshold ^b	11.15
Percent Mitigation Required	37.7%

^a Data generated using VTA's Travel Demand Model.

^b 85% of countywide average (13.11) .

Source: Hexagon, 2022. VTA Travel Demand Model.

⁴ The VMT analysis included 3 additional single-family units and 44 additional units on non-vacant/underutilized sites than what is described in *Chapter III, Project Description*; however, the VMT analysis in this section is considered more impactful. Fewer units would also result in a significant and unavoidable impact.

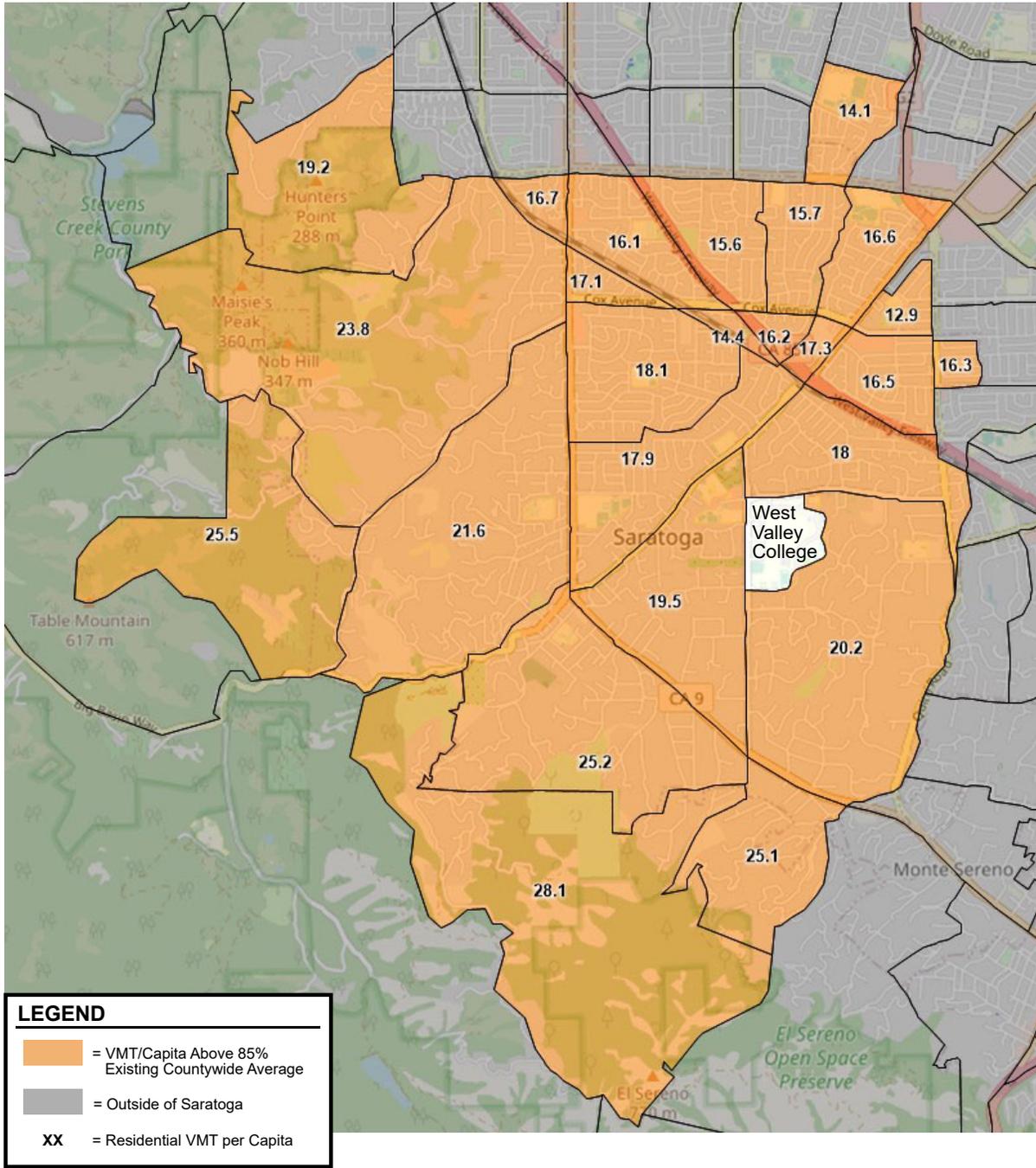


Figure IV.N-4

Residential Vehicle Miles Traveled

Saratoga Housing Element and Safety Elements, and 2040 General Plan Updates EIR

Mitigation Measure TRANS-1: VMT Reduction Measures. Because the project would generate a VMT level (17.90 per resident) greater than the threshold (11.15 VMT per resident), it would result in a significant transportation impact on VMT. Therefore, mitigation measures for the project are required to reduce VMT to below the threshold. The TDMs enumerated below would only apply to residential projects of 10 or more units and to non-residential projects of 6,000 square feet or more.

TRANS-1a: It is assumed that residential sites that generate or attract fewer than 110 trips per day are considered as small projects and would be screened out from further VMT analysis per the OPR guidelines, and mitigation measures would not be applicable to these sites. For sites that would not be screened out as small projects, the Santa Clara County VMT Evaluation Tool should be used to identify measures to reduce VMT to the greatest extent possible. The evaluation tool evaluates a list of selected VMT reduction measures that can be applied to a project to reduce the project VMT. There are four strategy tiers whose effects on VMT can be calculated with the VMT evaluation tool:

- Tier 1: Project characteristics (e.g., density, diversity of uses, design, and affordability of housing) that encourage walking, biking and transit uses;
- Tier 2: Multimodal network improvements that increase accessibility for transit users, bicyclists, and pedestrians. These improvements include:
 - Increased bike access.
 - Improved connectivity by increasing intersection density.
 - Increased transit accessibility.
 - Traffic calming measures beyond the project frontage.
 - Pedestrian network improvements beyond the project frontage.
- Tier 3: Parking measures that discourage personal motorized vehicle-trips. These improvements include:
 - Limited parking supply.
 - Bike facilities.
- Tier 4: TDM measures that provide incentives and services to encourage alternatives to personal motorized vehicle-trips. These measures for residential developments include:
 - School pool programs.
 - Bike share programs.
 - Car share programs.
 - Subsidized transit program.
 - Unbundled parking costs from property costs.
 - Voluntary travel behavior change program.

The first three strategies—land use characteristics, multimodal network improvements, and parking—are physical design strategies that can be incorporated into the design of specific

private and public projects. The fourth strategy includes programmatic measures that aim to reduce VMT by decreasing personal motorized vehicle mode share and by encouraging more walking, biking, and riding transit. However, VMT reduction from these measures would vary with each development, and the maximum reduction typically achieved from these measures is approximately 20 percent. This is far less than the average 37.7 percent required. In addition, it may not be possible to apply these standards to projects that are not subject to discretionary review. Therefore, these measures would not be sufficient to reduce the project's significant VMT impact.

TRANS-1b: The City shall develop a citywide VMT impact fee program. The fee would fund multimodal improvements for safe routes to school, pedestrian improvements like closing sidewalk gaps, widening sidewalks, and adding crosswalks and pedestrian hybrid beacons, bicycle improvements like adding bicycle lanes and bicycle racks, trail improvements, and transit improvements like adding shelters and benches at transit stops in the city. Improved safety and access to alternative modes of travel like biking, walking, and transit have been found to reduce automobile use for several trip purposes like shopping, school pick-up/drop-off, and recreation, and therefore reduce VMT. All new development projects in the city are expected to be required to pay the impact fee. It is not known whether the projects built with the fee would be sufficient to entirely offset the VMT impact of the Housing Element units. Furthermore, the fee is not adopted. Therefore, the impact for projects which do not screen out from VMT impact analysis would conservatively remain significant and unavoidable with mitigation. (SU)

Implementation of Mitigation Measure TRANS-1 would reduce the VMT impact under the project; however, this reduction would not be sufficient to reduce to a less-than-significant level. Therefore, the impact would remain significant and unavoidable.

(3) Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses (Criterion 3)

Subsequent new residential development, and other future projects under the project, including any new roadway, bicycle, pedestrian, and transit infrastructure improvements would be designed according to the City's General Plan and other City standards. Future projects would be subject to existing regulations that are aimed at reducing hazardous conditions with respect to circulation. Additionally, future development resulting from the project would be concentrated on sites that are already developed where impacts related to incompatible traffic related land uses would not likely occur. Therefore, the project would result in a less-than-significant impact to transportation hazards.

(4) Inadequate Emergency Access (Criterion 4)

Based on the proposed locations of new residential development in the city, adequate emergency access exists; and when specific development projects occur, emergency access within the site must be evaluated. Furthermore, the City maintains the roadway network that provides access to new development sites in accordance with industry design standards, which ensures that the physical network would be free of obstructions to emergency responders. The City's General Plan and other City standards and regulations include policies that would ensure efficient circulation and adequate access in the city, which would help facilitate emergency response. Emergency access to new development sites would be subject to review by the City and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. The City also requires the preparation of construction management plans that minimize temporary obstruction of traffic during site construction.

Additional vehicles associated with new development sites could increase delays for emergency response vehicles during peak commute hours. However, emergency responders maintain response plans that include use of alternate routes, sirens, and other methods to bypass congestion and minimize response times. In addition, California law requires drivers to yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes to ensure the safe and timely passage of emergency vehicles.

Based on the above considerations, adequate emergency access would be provided to new development sites, and the impact would be less than significant.

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O. UTILITIES AND SERVICE SYSTEMS

This section describes the current utilities and service systems in the project area and analyzes how implementation of the project and its associated development may affect those conditions. The evaluation in this section is based on a review of available resources from service providers, City documents, and correspondence with service providers.

1. Setting

a. Water Services

(1) Water Supply

The city is served by San José Water Company (SJW), an investor-owned publicly utility. SJW's water supply comes from three principal sources: groundwater, imported surface water, and local mountain surface water. SJW's service area encompasses about 139 square miles and includes the entire cities of Campbell, Monte Sereno, and Saratoga; the Town of Los Gatos; most of the cities of San José and Cupertino; and parts of unincorporated Santa Clara County.¹ In addition to its own water system, SJW also operates and maintains the Cupertino Municipal Water System through a lease agreement. For 2020, SJW's water use by customer type is shown in Table IV.O-1 below.

(2) Groundwater

SJW produces approximately 14,500 million gallons (MG) of treated ground water annually based on a 10-year average. SJW draws water from the Santa Clara Subbasin. The subbasin covers a surface area of 297 square miles and has an estimated operational capacity of 350,000 acre-feet (AF).² Santa Clara Valley Water District (SCVWD) is responsible for maintaining the subbasin. Due to different land use and management characteristics, SCVWD further delineates the Santa Clara Subbasin into two groundwater management areas: the Santa Clara Plain and Coyote Valley. SJW draws groundwater from the Santa Clara Plain groundwater management area. On average, SJW receives one-third of its potable water supply from the major water-bearing aquifers of the Santa Clara Subbasin.

The SCVWD is responsible for ensuring that the basin does not become over-drafted. SCVWD's 2020 Urban Water Management Plan (UWMP) describes the District's comprehensive

¹ San José Water Company (SJW), 2021. San José Water Company 2020 Urban Water Management Plan, June.

² San José Water Company (SJW), 2021. San José Water Company 2020 Urban Water Management Plan, June.

TABLE IV.O-1 DEMANDS FOR POTABLE WATER AND NON-POTABLE WATER – 2020 ACTUAL

Use Type	Additional Description	Level of Treatment When Delivered	Volume
Single-Family		Drinking water	19,387
Multi-Family		Drinking water	8,063
Commercial		Drinking water	4,645
Industrial		Drinking water	172
Institutional/Governmental		Drinking water	1,689
Landscape		Drinking water	2,396
Sales/Transfers/Exchanges to Other Suppliers	Resale	Drinking water	163
	Resale	Raw water	7
Losses			2,958
Other Potable	Portable meter	Drinking water	52
	Unbilled/unmetered use	Drinking water	60
Total			39,592

^a Includes potable and raw water use. Recycled water use is not included in this table but is shown in Table 6-4 of the 2020 UWMP. Unbilled unmetered use includes use for construction activities, tank/reservoir cleaning, irrigation at SJW stations, hydrant testing, meter testing, etc. Volumes for losses and unbilled unmetered use are estimated, based on the difference between system production data and metered use, and the typical distribution between losses and unbilled unmetered use from SJW’s recent water loss audits that were submitted to DWR as part of SB 555 requirements.
 Source: SJW UWMP, 2020.

groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management.³

The SCVWD’s 2020 UWMP identifies the following two basin management objectives (BMOs):

- Groundwater supplies are managed to optimize water supply reliability and minimize land subsidence; and
- Groundwater is protected from existing and potential contamination, including saltwater intrusion.

These BMOs describe the overall goals of SCVWD’s groundwater management program. The District has established comprehensive monitoring programs related to groundwater levels, land

³ Santa Clara Valley Water District (SCVWD), 2021. Urban Water Management Plan, June.

subsidence, overdraft, groundwater quality, recharge water quality, and surface water flow. SJW works with SCVWD to implement this and other programs to protect groundwater resources. The historical groundwater volume pumped by SJW from the Santa Clara Subbasin is shown in Table IV.O-2.

TABLE IV.O-2 RETAIL: GROUNDWATER VOLUME PUMPED

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	Santa Clara Subbasin	10,637	13,749	11,755	10,696	17,360
Total		10,637	13,749	11,755	10,696	17,360

Note: Volumes are in MG.
 Source: SJW UWMP, 2020.

(3) Imported Surface Water

In 1981, SJW and seven other retail agencies entered a master contract with SCVWD for the purchase of treated drinking water. The areas served with SCVWD treated water are contained within the individual retail agencies’ service areas. The contract provides for continuous service, utilizing three-year purchase schedules establishing fixed quantities of treated water to be purchased during each period. Table IV.O-3 below shows contracted supplies (in acre-feet) for fiscal years 2020/2021 – 2022/2023.

TABLE IV.O-3 CONTRACTED SUPPLY FY 2020/2021 – 2022/2023

Fiscal Year	Contracted Supply (AF)
2020/2021	70,723 AF
2021/2022	70,723 AF
2022/2023	71,858 AF

Source: SJW WSA, 2022 (Appendix E).

Imported surface water accounts for about 50 percent of SJW’s water supply. Approximately 55 percent of the water provided for purchase by SCVWD comes from snow or rain in the Sierra Nevada range, then as water in rivers that flow into the Sacramento-San Joaquin River Delta or directly to water conveyance systems. Water imported from Sacramento-San Joaquin River Delta is brought into Santa Clara County from several sources including local reservoirs, the State Water Project, and the federally funded Central Valley Project-San Felipe Division. Water is piped into SJW’s system at various locations after it is treated at one of three SCVWD water treatment plants.

(4) Local Mountain Surface Water

Surface waters from the local watersheds of the Santa Cruz Mountains provide about 7 percent of SJW's water supply depending on the amount of annual rainfall. In the wet winter months, SJW's surface water system is supplied primarily by intakes on Saratoga Creek, Los Gatos Creek, and tributaries to Los Gatos Creek. Per the licenses granted to SJW by the State Water Resources Control Board (SWRCB), SJW is permitted to draw 1,419 AF per year (AFY) from Saratoga Creek and 6,240 AFY from Los Gatos Creek.⁴

A series of dams and automated intakes collect the water released from SJW's lakes. The water is pumped into SJW's Montevina Water Treatment Plant (WTP) for treatment prior to entering the distribution system. SJW's Saratoga WTP draws water from a local stream which collects water from the nearby Santa Cruz Mountains. SJW owns and operates its water distribution system consisting of a pipe network which lies predominantly beneath the traveled roadway in the public street rights-of-way.

(5) Water Distribution Systems

The majority of connections to SJW's distribution system are either residential or commercial.⁵ SJW also provides water to industrial, institutional, landscape, and governmental connections. Combined, SJW and City of Cupertino water systems consists of approximately 2,450 miles of pipelines, 100 pressure zones, 225 booster pumps, 92 wells, 110 tanks and reservoirs, 11 raw water intakes, five raw water impoundments, three water treatment plans, and tens of thousands of other assets including valves, meters, service lines, fire hydrants, and chemical systems.⁶

b. Wastewater (Sanitary Sewer) System

Wastewater collection for the city is provided by the West Valley Sanitation District and the Cupertino Sanitary District. Wastewater collected from both districts is conveyed to the San José-Santa Clara (SJ/SC) Regional Wastewater Facility for treatment. The facility treats an average of 110 million gallons per day (MGD), with a capacity of up to 167 MGD. The SJ/SC Regional Wastewater Facility serves 1.4 million residents and over 17,000 businesses in eight cities and four sanitation districts. The facility is jointly owned by the Cities of San José and Santa Clara and is managed and operated by the City of San José Environmental Services Department.

⁴ San José Water Company (SJW), 2021. San José Water Company 2020 Urban Water Management Plan, June.

⁵ Chad Kumabe, 2022. Water Supply Assessment, San José Water Company, August.

⁶ San José Water Company (SJW), 2021. San José Water Company 2020 Urban Water Management Plan, June.

After wastewater enters the SJ/SC Regional Wastewater Facility, it undergoes a three-step treatment process to remove solids, pollutants, and harmful bacteria.⁷ After tertiary treatment, approximately 80 percent of the treated water is piped to the outfall channel. From there, it eventually flows into the South San Francisco Bay. The remaining 20 percent of the treated water is sent to South Bay Water Recycling and used for irrigation.

(1) West Valley Sanitation District⁸

West Valley Sanitation District provides wastewater collection and disposal services to the cities of Campbell, Monte Sereno, and the Town of Los Gatos; two-thirds of Saratoga; and the intervening unincorporated areas of Santa Clara County. The West Valley Sanitation District's service area encompasses 28.3 square miles and services approximately 105,462 residents. The West Valley Sanitation District's wastewater collection system consists of approximately 415 miles of sewer mains and 210 miles of lower sewer laterals, for a total of 625 miles of sewer system. In 2012, the West Valley Sanitation District's capacity allocation was 12.025 MGD, of which 84 percent was used.⁹

(2) Cupertino Sanitary District¹⁰

The Cupertino Sanitary District provides sewage collection, treatment, and disposal services within the City of Cupertino; portions of Los Altos, northwestern Saratoga, and Sunnyvale; and unincorporated areas within Santa Clara County. The Cupertino Sanitary District's service area encompasses approximately 13.1 square miles and services a population of over 59,000 residents. The Cupertino Sanitary District operates a collection system, consisting of 294 miles of mains and sewers, 17 pump stations, and one metering station. The Cupertino Sanitary District has a fixed capacity allocation of 7.875 and approximately 5 MGD are conveyed daily.¹¹

c. Stormwater Drainage System

The City operates and maintains a stormwater drainage system and coordinates with surrounding jurisdictions and Santa Clara County to provide regional storm drainage for the Santa Clara Valley area. Drainage improvements are planned to enable additional development

⁷ City of San José, Treatment Process. Available at: <https://www.sanjoseca.gov/your-government/environment/water-utilities/regional-wastewater-facility/treatment-process>, accessed September 6, 2022.

⁸ West Valley Sanitation District, 2018. Sewer System Management Plan, Adopted August 8.

⁹ Santa Clara Local Agency Formation Commission (LAFCO), 2013. Special Districts Service Review: Phase 2. Adopted December 4.

¹⁰ Cupertino Sanitary District, 2021. Sewer System Management Plan. Certified May 11.

¹¹ Santa Clara Local Agency Formation Commission (LAFCO), 2013. Special Districts Service Review: Phase 2. Adopted December 4.

while preventing flooding. The stormwater drainage system consists of a series of inlets and pipes that channel storm runoff to various creeks, which discharge into San Francisco Bay.¹²

The City requires that new development include the installation and maintenance of best management practices (BMP's) for site design and stormwater treatment, which must be designed per approved numeric sizing criteria.¹³

d. Solid Waste and Recycling

West Valley Collection and Recycling (WVC&R) is contracted by the West Valley Solid Waste Management Authority to provide garbage, recycling, and green waste collecting services to the city. Per its contract with West Valley Solid Waste Management, WVC&R is required to collect solid waste and recyclables no less than once per week. All recyclables collected within the city are delivered to a Material Recovery Facility (MRF) located in San José.

e. Electricity and Natural Gas

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas service to the city. Electric transmission lines primarily run west to east in the northern half of the city, along State Route 85 (SR-85). The electric transmission lines have voltages of under 100 volts and 220-287 volts.¹⁴ Natural gas distribution lines run just outside of the city in San José along Saratoga Avenue.¹⁵ In 2021, 50 percent of PGE's electricity came from renewable resources including biopower, geothermal, small hydroelectric, solar and wind power. Overall, 93 percent of PGE's electricity came from greenhouse gas- (GHG) free resources, including renewables, nuclear, and large hydroelectric power.¹⁶

¹² City of Saratoga, 2019. Green Stormwater Infrastructure Plan, Final Draft, August 21.

¹³ City of Saratoga, 2022. Stormwater Pollution Prevention. Available at: <https://www.saratoga.ca.us/208/Stormwater-Pollution-Prevention>, accessed September 20, 2022.

¹⁴ Pacific Gas and Electric (PG&E), 2022. Geographic Information System (GIS) and Demographic Data Economic Development Site Tool. Available at: https://www.pge.com/en_US/large-business/services/economic-development/opportunities/sitetool.page, accessed November 7, 2022.

¹⁵ Pacific Gas and Electric (PG&E), 2022. Gas Transmission Pipeline Map. Available at: https://www.pge.com/en_US/safety/how-the-system-works/natural-gas-system-overview/gas-transmission-pipeline/gas-transmission-pipelines.page, accessed November 7, 2022.

¹⁶ Pacific Gas and Electric (PG&E), 2021. Exploring Clean Energy Solutions. Available at: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page, accessed November 7, 2022.

f. Telecommunications

The telecommunications system serving the City of Saratoga consists of several providers, primarily AT&T, Xfinity, and HughesNet.¹⁷

2. Regulatory Setting

The following describes the federal, State, regional, and local regulatory setting as it relates to utilities and service systems.

a. Federal

The following section describes the existing federal regulatory environment related to utilities and service systems.

(1) Clean Water Act

The Clean Water Act established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, such as setting wastewater standards for industry. The Clean Water Act sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The Army Corps of Engineers has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the Clean Water Act, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with State water quality standards. As described in *Section IV.H, Hydrology and Water Quality*, the Clean Water Act authorizes the EPA to implement water quality regulations.

(2) National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402 of the CWA controls water pollution by regulating soil erosion and stormwater discharges at point and non-point sources into U.S. waters. The EPA delegated authority for NPDES permitting authority to the SWRCB and its nine Regional Water Quality Control Boards for the approved

¹⁷ AllConnect, 2022. Internet Providers in Saratoga, CA. Available at: <https://www.allconnect.com/local/ca/saratoga#:~:text=The%20largest%20internet%20providers%20in,covers%2099%25%20of%20the%20area>, accessed November 8, 2022.

California State NPDES program. The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) regulates water quality in the Plan Area and has established wastewater treatment requirements for the SJ/SC Regional Wastewater Facility in an NPDES Permit (Order No. R2-2020-0001), adopted February 2022.¹⁸ The NPDES Order sets out a framework for compliance and enforcement applicable to the operation of the Regional Wastewater Facility and its effluent, as well as those contributing influent to the SJ/SC Regional Wastewater Facility.

(3) Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) authorizes the EPA to set national standards for maximum contaminant levels in drinking water to protect against both naturally occurring and human-caused contaminants that may be found in drinking water. Under the SDWA, all water providers in the U.S. – except for private wells serving fewer than 25 individuals – are required to treat water to remove contaminants. In California, the State Department of Health Services conducts most enforcement activities. If a water system does not meet standards, it is the water supplier’s responsibility to notify its customers.

b. State

The following section describes the existing State of California regulatory environment related to utilities and service systems.

(1) Assembly Bill 1881 and Assembly Bill 2006 – Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (Assembly Bill [AB] 1881, Laird) requires Cities, Counties, and Charter Cities and Charter Counties to adopt landscape water conservation ordinances by January 1, 2010. Pursuant to this law, the Department of Water Resources has prepared a Model Water Efficient Landscape Ordinance for use by local agencies. Most new and rehabilitated landscapes are subject to a water efficient landscape ordinance. Public landscapes and private development projects, including developer-installed single-family and multi-family residential landscapes with at least 2,500 square feet of landscape area, are subject to the model water ordinance. Homeowner-provided landscaping at single-family and multi-family homes is subject to the ordinance if the landscape area is at least 5,000 square feet. However, the ordinance does not apply to registered local, State, or federal historic sites; ecological restoration projects; mined-land reclamation projects; or plant collections.

¹⁸ San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), San José/Santa Clara Water Pollution Control Plant, Order No. R2-2020-0001, National Pollutant Discharge Elimination System No. CA0037842. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2020/February/6a_final_to.pdf, accessed November 1, 2022.

(2) Assembly Bill 341 – Mandatory Commercial & Multi-Family Recycling

The purpose of AB 341 is to reduce GHG emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California. Under AB 341, businesses that generate more than four cubic yards of commercial solid waste per week and multifamily residential dwellings of five units or more are required to arrange for recycling services.

(3) Assembly Bill 797 – Urban Water Management Planning Act

The Urban Water Management Planning Act has as its objectives the management of urban water demands and the efficient use of urban water. Under its provisions, every urban water supplier is required to prepare and adopt an Urban Water Management Plan (UWMP). An “urban water supplier” is a public or private water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 connections or supplying more than 3,000 AF of water annually. The plan must identify and quantify the existing and planned sources of water available to the supplier, quantify the projected water use for a period of 20 years, and describe the supplier’s water demand management measures. The urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Department of Water Resources must receive a copy of an adopted urban water management plan.

(4) Assembly Bill 939 (Integrated Waste Management Act) and Senate Bill 1016 (Solid Waste Disposal Measurement Act)

In 1989, the California Legislature enacted AB 939 (California Integrated Waste Management Act), which requires the diversion of waste materials from landfills in order to preserve landfill capacity and natural resources. Cities and Counties in California were required to divert 25 percent of solid waste by 1995 and 50 percent of solid waste by 2000. This Act further requires every city and county to prepare two documents demonstrating how the mandated rates of diversion will be achieved. The Source Reduction and Recycling Element must describe the chief source of the jurisdiction’s waste, the existing diversion programs, and current rates of waste diversion and new or expanded diversion programs. The Household Hazardous Waste Element must describe each jurisdiction’s responsibility in ensuring that household hazardous wastes are not mixed with nonhazardous solid wastes and subsequently deposited at a landfill.

SB 1016 builds on AB 939 compliance requirements by requiring that the 50 percent solid waste diversion be measured in terms of per-capita disposal expressed as pounds per person per day. The new per capita disposal and goal measurement system moves the emphasis from an estimated diversion measurement number to using an actual disposal measurement number as a

factor. Every year California Department of Resources Recycling and Recovery (CalRecycle) will calculate each jurisdiction's per capita (per resident and per employee) disposal rates and will review jurisdiction compliance on a case-by-case basis. Jurisdictions will not be compared to other jurisdictions or the statewide average but compared to their own 50 percent per capita disposal target.

(5) California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the SWRCB has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional level. The RWQCBs engage in several water quality functions in their respective regions and regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.

(6) California Code of Regulations, Title 23: Water Code

Title 23, California's Model Water Efficient Landscape Ordinance, requires new construction and rehabilitated landscape project applicants to submit a Landscape Documentation Package to the local agency or designated agency for approval. The Landscape Documentation Package includes project and water supply information, and a Water Efficient Landscape Worksheet.¹²

(7) California Code of Regulations, Title 24, Part 11: California Building Standards (CALGreen)

CALGreen is a Statewide regulatory code for all residential, commercial, hospital, and school buildings. The regulations are intended to encourage more sustainable and environmentally-friendly building practices, require low-pollution-emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Title 24 standards require all new residential and nonresidential development to comply with several energy conservation standards through the implementation of various energy conservation measures—including ceiling, wall, and concrete slab insulation; vapor barriers; weather stripping on doors and windows; closeable doors on fireplaces; insulated heating and cooling ducts; water heater insulation blankets; and certified energy-efficient appliances. CALGreen became mandatory on January 1, 2011, for new residential and commercial construction. Please refer to the regulatory framework subsection of *Section IV.F, Greenhouse Gas Emissions*, for a detailed discussion of AB 32, and other energy-related State regulations.

(8) California Solid Waste Reuse and Recycling Act of 1991

Public Resources Code Sections 42900–42901, also known as the California Solid Waste Reuse and Recycling Access Act, are part of the California Integrated Waste Management Act. In addition to the solid waste diversion requirements of AB 939, this legislation required the California Integrated Waste Management Board, on or before March 1, 1993, to adopt a model ordinance for adoption by a local agency relating to adequate areas for collecting and loading recyclable materials in development projects. A local agency is required to adopt and enforce that model ordinance if it did not adopt an ordinance providing for collection and loading by September 1, 1994. In 2010, the California Integrated Waste Management Board was replaced by CalRecycle.

(9) California State Water Resources Control Board - General Waste Discharge Requirement

On May 2, 2006, the SWRCB adopted a General Waste Discharge Requirement (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a Sewer System Management Plan (SSMP). The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system. The SWRCB has delegated authority to nine RWQCBs to enforce these requirements within their region. The city of Saratoga is within the jurisdiction of the SFBRWQCB.

The SFBRWQCB has established wastewater treatment requirements for the SJ/SC Regional Wastewater Facility in an NPDES Permit (No. R2-2020-0001), adopted September 10, 2014, and effective November 1, 2014. The NPDES Order sets out a framework for compliance and enforcement applicable to operation of the Regional Wastewater Facility and its effluent, as well as those contributing influent to the SJ/SC Regional Wastewater Facility.

(10) Senate Bill 1383 – Organics Recycling

As described in *Section IV.F, Greenhouse Gas Emissions*, SB 1383 was signed in September 2016 to reduce emissions of short-lived climate pollutants. As it pertains to CalRecycle, SB 1383 establishes targets to achieve a 50-percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75-percent reduction by 2025. The law grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed

edible food is recovered for human consumption by 2025.¹⁹ SB 1383 further supports California's efforts to achieve the statewide 75-percent recycling goal by 2020 established in AB 341.

(11) Senate Bill 610 and Senate Bill 221 (2001)

The Senate Bill (SB) 610 and SB 221 amended State law to ensure better coordination between local water supply and land use decisions and confirm that there is an adequate water supply for new development. Both statutes require that detailed information regarding water availability be provided to city or county decision-makers prior to approval of large development projects.

SB 610 requires the preparation of a water supply assessment (WSA) for certain types of projects, as defined by Water Code Section 10912, which are subject to the California Environmental Quality Act (CEQA). Projects required to prepare a WSA are defined as follows:

- Residential development of more than 500 dwelling units.
- Shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor area.
- Hotel or motel, or both, having more than 500 rooms.
- Industrial, manufacturing or processing plant, or industrial park planned to employ more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- Mixed-use project that includes one or more of the projects specified above.
- Project that would demand an amount of water equivalent to, or greater than, the amount of water required for 500 dwelling units.

SB 221 establishes consultation and analysis requirements related to water supply planning for residential subdivisions including more than 500 dwelling units. The water supplier must provide written verification that sufficient water is available for the project is required before construction begins. The document used to determine compliance with both SB 610 and SB 221 is the adopted UWMP.

(12) Sentate Bill X7-7: Water Conservation Act of 2009

The Water Conservation Act of 2009 (SB X7-7) requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water by 20 percent by 2020,

¹⁹ California Department of Resources Recycling and Recovery (CalRecycle). Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions. Available at: <https://www.calrecycle.ca.gov/Climate/SLCP/>, accessed December 19, 2018.

with an interim goal of a 10 percent reduction in per capita water use by 2015. Effective in 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for State water grants or loans.

(13) Water Supply Consultation

Sections 10910 to 10915 of the California Public Resources Code require local water providers to conduct a WSA for projects proposing over 500 housing units, 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. Local water suppliers must also prepare (or have already prepared) an UWMP to guide planning and development in the water supplier's service area, and specifically to pursue efficient use of water resources. Issuance of a WSA determination by the local water supplier for a proposed project verifies that the supplier has previously considered a project in its plan and has adequate capacity to serve a project in addition to its existing service commitments (or, alternatively, measures that would be required to adequately serve the proposed project).

c. Local

(1) County of Santa Clara Health Code

Division B11, Chapter II, Articles 1 and 2 of the County Health Code contains wastewater discharge regulations that set uniform requirements for discharges into the wastewater collection and treatment system and enable the agency to comply with the administrative provisions of the clean water grant regulations, the water quality requirements set by the RWQCB and the applicable effluent standards, and any other discharge criteria which are required or authorized by State or federal law, and to derive the maximum public benefit by regulating the quality and quantity of wastewater discharged into those systems.

(2) Santa Clara County Integrated Waste Management Plan

The existing California Integrated Waste Management Act of 1989, which is administered by CalRecycle, establishes an integrated waste management program. Each State agency must develop and adopt, in consultation with the Board, an Integrated Waste Management Plan (IWMP). The Santa Clara County IWMP was approved by the CIWMB in 1996. Since that time, it has undergone three 5-year reviews. The jurisdictions in the Santa Clara County IWMP include Campbell, Cupertino, Gilroy, Morgan Hill, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San José, Santa Clara, Saratoga, Sunnyvale, and the unincorporated areas of Santa Clara County. Each jurisdiction in the County is required to divert 50 percent of its solid waste from landfills, for 2000 and each year thereafter. Waste diversion

(e.g., recycling, composting...) is the process of reducing the amount of solid waste (trash/garbage) that ends up in the landfill.

According to CalRecycle,²⁰ in 2020, Saratoga had a population of 30,850, supported 6,922 employees, and disposed a total of 14,863 tons of waste at the landfill. During this time period, the City had a target disposal rate of 4.2 pounds/person/day for population and 19.4 pounds/person/day for employment to the local landfill. The City exceeded the 50 percent diversion goal by achieving a disposal rate of 2.6 pounds/person/day for population and 11.8 pounds/person/day for employment in 2020.

(3) Saratoga General Plan

The proposed Saratoga General Plan includes the following relevant policies and implementation measures (IMs) that assist in reducing or avoiding impacts to utilities and service systems:

Land Use Element

Policy LU-6.2: Development proposals shall incorporate stormwater quality features, including Low Impact Development (LID) site design, source control and treatment measures, such as infiltration and biotreatment to protect surface and subsurface water quality consistent with the City's stormwater NPDES permit and Green Stormwater Infrastructure (GSI) Plan.

Policy LU-6.3: Continue to implement the City's Construction Materials Recycling Program to reduce the quantity of construction debris in local landfills.

IM LU-6.b: Continue to distribute information regarding the City's Construction Materials Recycling Program during the building permitting process.

Open Space and Conservation Element

Policy OSC-10.2: Concentrate development in those portions of the community least susceptible to soil erosion and minimize grading and the introduction of impervious surfaces. Where appropriate, consider the use of on-site site low impact development (LID) or green infrastructure elements, such as stormwater capture, infiltration, and biotreatment, to minimize stormwater runoff from sites.

²⁰ California Department of Resources Recycling and Recovery (CalRecycle). Jurisdiction Diversion/Disposal Rate Summary, Saratoga, 2020. Available at: <https://www2.calrecycle.ca.gov/LGCentral/DiversionProgram/JurisdictionDiversionPost2006>, accessed September 6, 2022.

IM OSC-10.b: Ensure erosion control measures are required with each development project as part of the development approval process. Project applicants shall demonstrate that project implementation will not result in increases in the peak flow runoff to adjacent lands or drainage facilities

Policy OSC-11.1: Implement water conservation provisions of the San José Water Company's Urban Water Management Plan.

Policy OSC-11.2: Encourage wastewater collection and treatment providers to maintain adequate levels of service.

IM OSC-11.a: Inform applicants of water conservation provisions and require that all new development proposals be in compliance with the water conservation provisions of the San José Water Company's Urban Water Management Plan.

IM OSC-11.b: Continue to ensure compliance with the Water Efficient Landscaping ordinance as part of the development review process to require the use of native and drought-tolerant landscaping.

(4) Saratoga Municipal Code

The following rules and regulations in the Saratoga Municipal Code are related to water supply, sewer connections, solid waste disposal, and storm drain systems.

Article 7-10 (Sewage Disposal) establishes standards for connecting to the public sanitary sewer system or installing and operating individual on-site sewage disposal systems. This section incorporates Section B11-13.3 of the Code of the County of Santa Clara regarding instances in which connection to a public sanitary sewer is required.

Section 7-10.080 (Connection to Public Sewer) includes regulations regarding the process for connecting to the public sanitary sewer system.

Section 14-15.040 (Certificates of Occupancy) states that a final certificate of occupancy will not be issued until all streets, curbs, gutters, utility services, sewer and storm drain facilities are installed and completed to the satisfaction of the City Engineer and the Community Development Director.

Section 14-30.030 (Storm Water and Sewage) requires that subterranean storm drains be designed and installed by the subdivider or owner to adequately and safely drain all storm water runoff from a subdivision or site. All drainage plans need to be consistent with the requirements of the Santa Clara Valley Urban Runoff Pollution Prevention Program (NPDES).

Section 14-30.040 (Water) requires that in all hazardous fire areas, fire hydrants be located so that no part of a residential structure be further than five hundred feet from at least one hydrant, and that the fire protection systems shall be so designed and charged with water so that each hydrant for residential fire protection shall deliver no less than one thousand gallons per minute of water.

Article 15-47 (Water-Efficient Landscaping) serves to reduce water waste in landscaping by promoting the use of region-appropriate plants that require minimal supplemental irrigation, and by establishing standards for irrigation efficiency. The Article implements the California Water Conservation in Landscaping Act.

Section 15-47.060 of the Saratoga Municipal Code (Stormwater Management and Rainwater Retention) stipulates that stormwater best management practices be implemented into each project landscape and irrigation plan and each project grading design plan to minimize runoff and to increase on-site rainwater retention and infiltration. Section 16-17.120 of the Municipal Code (Drainage and Terracing) further dictates that the disposition of on-site stormwater be consistent with the requirements of the NPDES.

Section 16-20.50 requires all buildings and structures, or portions thereof, relocated into or within the Wildland-Urban Interface Fire Area to be provided with fire protection water supplies in accordance with Chapter 5 and Section 4909.2 of the Saratoga Municipal Code.

Section 16-66.100 of the Saratoga Municipal Code (Standards for Utilities) requires all new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate: (1) infiltration of flood waters into the systems and, (2) discharge from the systems into flood waters. Section 16.66-100 additionally requires that on-site waste disposal systems be located to avoid impairment to them, or contamination from them during flooding.

Article 16-47 (Green Building Regulations) promotes the redirection of recyclable materials generated during construction away from landfills. This Article implements AB 939.

3. Impacts and Mitigation Measures

Impacts to utilities and service systems resulting from implementation of the project are discussed below. The following impact analysis is based on an assessment of existing and future conditions for the Saratoga planning area related to water supplies, wastewater treatment capacity, landfill capacity, and storm drain capacity. This analysis identifies potential impacts to water supply, wastewater, solid waste, and storm drains based on development anticipated from residential development under the project.

a. Significance Criteria

According to the CEQA Guidelines Appendix G, the project would have a significant effect on water supplies, wastewater, solid waste, or storm water conveyance if demand associated with development under the project would result in any of the following conditions:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment facilities or stormwater drainage, electrical power, natural gas, or telecommunication facilities, the relocation or construction of which could cause significant environmental effects;
2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
3. Result in a determination that the wastewater treatment provider does not have adequate capacity to serve projected demand in addition to existing commitments;
4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
5. Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

b. Analysis and Findings

(1) Water Supply (Criteria 1 & 2)

Residential development accommodated under the project could result in additional residents in the city. As described in *Chapter III, Project Description*, the project is expected to accommodate approximately 1,994 new residential dwelling units. This new growth could increase the city's population by approximately 5,703 residents, thereby increasing demand for water.

The SCVWD provides about 90 percent of water supplies (as purchased/imported water and groundwater) that SJW provides to its customers. As such, SJW is reliant on SCVWD (the County wholesale water supplier) to increase water supply for average, single-dry and multiple-dry years.

Past, Current, and Future System Water Use

SJW has developed demand projections from 2025 to 2045 based on population and per capita usage projections. ABAG census tract population projections were used to estimate population growth. Daily per capita water usage for SJW's service area in 2020 was 108 gallons per capita per day (gpcd). It was assumed that all developments after 2020 would require high water efficiency fixtures. Therefore, a lower daily per capita water use of 75 gpcd across all water sectors was

applied to new population growth after 2020. For the existing 2020 population, it was assumed that the 108 gpcd from 2020 to 2025 would increase slightly by 1 percent per year, based on the rebounds in demand that have been observed following the past drought. Following the start of compliance with State conservation mandates (SB 606 and AB 1668) in 2025, per capita water use is expected to decrease. It was assumed that the per capita water use for the existing population would experience a decline of 0.8 percent per year from 2025 to 2045.²¹

Table IV.O-4 summarizes water supply demand for the years 2020-2045 by source of supply.

TABLE IV.O-4 DEMANDS FOR POTABLE AND NON-POTABLE WATER (EXCLUDING RECYCLED WATER) (AFY)

Use Type	2020	2025	2030	2035	2040	2045
Single-Family	59,497	53,877	53,877	54,187	54,411	54,550
Multi-Family	24,744	35,255	35,255	35,308	36,161	36,959
Commercial	14,255	18,073	18,073	18,146	18,364	18,551
Industrial	528	718	718	721	730	737
Institutional/Governmental	5,183	6,607	6,607	6,635	6,715	6,785
Landscape	7,353	7,964	7,964	7,994	8,093	8,176
Sales/Transfers/Exchanges	522	568	568	571	580	586
Other Potable	344	417	417	417	420	424
Water Losses	9,078	9,269	9,269	9,332	9,443	9,541
Total Water Demand (MGY)	121,504	132,776	132,776	133,312	134,918	136,308

Note: Other potable includes portable meter and unbilled unmetered use. Unbilled unmetered use includes use for construction activities, tank/reservoir cleaning, irrigation at SJW stations, hydrant testing, meter testing, etc.

Source: SJW WSA, 2022 (Appendix E).

Estimated Project Water Use

As described in the WSA prepared by SJW for the project in August 2022, total water usage for the project is estimated at 629,712 gallons per day (gpd), which is equivalent to an annual usage of about 705 AF of water. The planning area has an existing water usage of about 156 AFY. Therefore, the annual net demand increase in water usage associated with this project is 550 AF and represents a 0.45-percent increase over the system wide 2020 water production of 121,504 AF. The projected water demand for the project is within normal growth projections for water demand in SJW's system.²²

²¹ San José Water Company (SJW), 2022. City of Saratoga 6th Cycle, 2040 General Plan Updates Water Supply Assessment, August. (See Appendix E.)

²² San José Water Company (SJW), 2022. City of Saratoga 6th Cycle, 2040 General Plan Updates Water Supply Assessment, August. (See Appendix E.)

Supply Reliability by Type of Water Year

As described in the 2022 WSA prepared for this project, SCVWD 2020 UWMP has identified average, single-dry, and multiple-dry years for water supply reliability planning. According to SCVWD, these years correspond to:

- Average Year (1922 – 2015): Average supply over the hydrologic sequence of 1922 through 2015.
- Single-Dry Year (1977): Within the historic record, this was the year with the estimated lowest amount of total supply.
- Multiple-Dry Years (1988-1992): This is a multiple-dry year period that puts the most strain on the District's water supplies. The 2012-2016 drought was the most recent multiple dry year period that put severe strain on Valley Water's supplies. However, because imported water allocations are not currently available for the 2012-2016 drought from DWR's modeling, Valley Water used the 1988-1992 drought, another severe multiple year drought in the historic hydrological record.

Water supplies are based on SCVWD's water evaluation and planning system model. According to SCVWD, this model simulates their water supply system comprised of facilities to recharge the county's groundwater basins, local water systems including the operation of reservoirs and creeks, treatment and distribution facilities, and raw water conveyance systems. The model also accounts for non-SCVWD sources and distribution of water in Santa Clara County such as imported water from San Francisco Public Utilities Commission, recycled water, and local water developed by other agencies.

Based on SCVWD's water evaluation and planning system model, SJW anticipates adequate supplies for the years 2025 to 2045 to meet system demand under average year conditions (see Table IV.O-5).

SJW anticipates that the single-dry year was the year with the estimated lowest amount of total supply. Table IV.O-6 shows that supplies, with the use of reserves, appear to be sufficient to meet demands during a single-dry year through 2045. This assumes reserves are at healthy levels at the beginning of the year and that projects and programs identified in SCVWD's 2040 Waste Supply Master Plan are implemented. If reserves are low at the beginning of a single-dry year, SCVWD might institute measures to reduce water use in combination with using reserves.

TABLE IV.O-5 SUPPLY AND DEMAND COMPARISON – AVERAGE WATER YEAR (AFY)

	Year				
	2025	2030	2035	2040	2045
Demand	135,648	135,875	136,961	138,579	139,957
Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
Demand Met by Conservation	0	0	0	0	0

Notes:

1. AFY = acre-feet per year.
 2. Includes demands associated with the project.
- Source: SJW WSA, 2022 (Appendix E).

TABLE IV.O-6 SUPPLY AND DEMAND COMPARISON – SINGLE-DRY WATER YEARS (AFY)

	Year				
	2025	2030	2035	2040	2045
Demand	135,648	135,875	136,961	138,579	139,957
Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
Demand Met by Conservation	0	0	0	0	0

Notes:

1. AFY = acre-feet per year.
 2. Includes demands associated with the project.
- Source: SJW WSA, 2022 (Appendix E).

Table IV.O-7 shows multiple-dry year supply and demand comparisons for the years 2025 through 2045. The multiple-dry year period used in the analysis assumes a repetition of the hydrology that occurred in 1988 to 1992, which is the multiple-dry year period that puts the most strain on the county’s water supplies. During multiple-dry year droughts, a call for up to mandatory 20 percent conservation may be needed. As shown in Table IV.O-7, supplies appear to be sufficient to meet demands during the first, second, and third years through 2045.

To summarize, as depicted in Table IV.O-5 through Table IV.O-7, SJW anticipates adequate water supplies for the years 2025 to 2045 to meet system demand under average year conditions as well as sufficient water supplies to meet demands during a single-dry year and multiple-dry year scenario. If the SJW should experience a shortage of supply during a drought, it will activate its current Water Shortage Contingency Plan to reduce water consumption.

The 2020 Water Shortage Contingency Plan was filed with the California Public Utilities Commission and includes five stages of water conservation (see Table IV.O-8).

TABLE IV.O-7 SUPPLY AND DEMAND COMPARISON – MULTIPLE-DRY WATER YEARS (AFY)

		Year				
		2025	2030	2035	2040	2045
First Year	Demand	135,648	135,875	136,961	138,579	139,957
	Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
	Demand Met by Conservation	0	0	0	0	0
Second Year	Demand	135,648	135,875	136,961	138,579	139,957
	Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
	Demand Met by Conservation	0	0	0	0	0
Third Year	Demand	135,648	135,875	136,961	138,579	139,957
	Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
	Demand Met by Conservation	0	0	0	0	0
Fourth Year	Demand	135,648	135,875	136,961	138,579	139,957
	Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
	Demand Met by Conservation	0	0	0	0	0
Fifth Year	Demand	135,648	135,875	136,961	138,579	139,957
	Demand Met by Water Supply	135,648	135,875	136,961	138,579	139,957
	Demand Met by Conservation	0	0	0	0	0

Notes:

1. AFY = acre-feet per year.
 2. Includes demands associated with the project.
 3. This information is solely based on SJW’s Urban Water Management Plan, which follows State requirements and utilizes Valley Water estimates which may not reflect actual water supply and demand conditions.
- Source: SJW WSA, 2022 (Appendix E).

TABLE IV.O-8 STAGES OF WATER SHORTAGE CONTINGENCY PLAN

Stage	Percent Supply Reduction	Water Supply Condition
1	Up to 10%	Normal
2	Up to 20%	Alert
3	Up to 30%	Severe
4	Up to 40%	Critical
5	Greater than 40%	Emergency

Source: SJW 2020 UWMP.

SJW has a complete water conservation and public outreach program. During a drought, SJW works with its wholesale water supplier and other retail agencies in the County to collaborate on additional public outreach strategies. For example, in 2015, SJW and the other retailers in Santa Clara County worked with SCVWD on a 2-day per week outdoor irrigation limitation to reduce the demand for water used for outdoor irrigation.

As described in the 2020 UWMP, SJW and SCVWD have worked to develop a variety of local and imported water supplies to meet the demand for potable water. As demand increases with the region's growth, and imported water supplies potentially become more restricted, these planned supplies will increase in importance. Groundwater, which has historically been a vital source of supply for SJW, has recently become more critical for SJW due to ongoing drought conditions. When weather conditions return to average historical conditions, groundwater and imported supplies are assumed to return to the historical 10-year averages. Surface water supply volume is assumed to hold constant at the 10-year average (2011-2020) as the watershed supplying the surface water treatment plants will not change.

SJW stated that there may be certain areas where storage or pumping facilities are currently undersized. However, those deficiencies would be addressed by either SJW, or if there is a large project that requires additional facilities, by the developer/applicant.

While residential development facilitated by the project would result in an increased demand for both potable and recycled water, SJW determined that water supply would be sufficient to accommodate future demand in the SJW service area through 2045, under normal circumstances. If the SJW should experience a shortage of supply during a drought, it will activate its current Water Shortage Contingency Plan to reduce water consumption.

The City also has a range of goals, policies, and implementation measures to ensure an adequate water supply for development and to minimize the potential adverse effects of increased water use. Implementation Measure OSC-11.a (currently proposed as OSC-10.a in the General Plan Update) requires that all new development proposals be in compliance with the water conservation provisions of the SJW UWMP. Implementation Measure OSC-11.b (currently proposed as OSC-10.b in the General Plan Update) requires the City, as part of the development review process, to ensure compliance with the Water Efficient Landscaping ordinance and require the use of native and drought-tolerant landscaping.

In addition, with SB X7-7 and the State, County, and local water conservation ordinances in place, each jurisdiction within the SJW service area is required to conserve its water use through establishing water efficiency measures. The City of Saratoga will continue to coordinate with regional water districts regarding water conservation efforts, including compliance with drought plans. This coordination and compliance would serve to reduce water use and demand overall and especially during drought years.

If larger development projects occur within the planning area, development facilitated by the project would be subject to SB 610 and SB 221, which require WSAs for large development projects prior to project approval.

In conclusion, compliance with the policies and implementation measures in the General Plan, compliance with SB 610 and SB 221, and compliance with existing water conservation regulations and drought plans, would reduce impacts related to water supply to less than significant. In addition, because the project would not require or result in any off-site improvements related to the relocation or construction of new or expanded water infrastructure, the project has a less-than-significant impact.

(2) Wastewater Treatment (Criteria 1 and 3)

As previously described, wastewater collection and disposal services for the city are provided by the West Valley Sanitation District and the Cupertino Sanitary District.

The West Valley Sanitation District has a contractual treatment allocation with the SJ/SC Regional Wastewater Facility of 11.69 MGD.²³ The daily wastewater flow from West Valley Sanitation District to the SJ/SC Regional Wastewater Facility for fiscal year 2020-2021 was 9.763 MGD.²⁴ The Sewer System Management Plan included a capacity assessment to determine the adequacy of the collection system to handle current and future wastewater flows. The Plan also included a system evaluation, based on results of a 2018 hydraulic analysis. The hydraulic analysis identified a total of 34 deficiencies in the collection system. As stated in the Plan, all of the deficiencies will be addressed with the District's 5- and 10-Year Capital Improvement Program (CIP) projects and the San José joint trunk sewer projects. The evaluation also confirmed that the District's entire collection system is capable of handling peak dry weather flows. Further, the District charges connection permit fees for new connections to the main sewer line, or changes in land use which substantially impact the quantity or quality of the effluent.

The Cupertino Sanitary District has a contractual treatment allocation with the SJ/SC Regional Wastewater Facility of 7.85 MGD, on average. The daily wastewater flow from Cupertino Sanitary District to the SJ/SC Regional Wastewater Facility is approximately 3.6 MGD, with peak hourly flows estimated to be approximately 5.5 MGD.²⁵ As a part of the 2016 Sewer System Management Plan, the Cupertino Sanitary District performed a capacity analysis of their entire collection system. Improvements required to mitigate system deficiencies and accommodate

²³ West Valley Sanitation District. Excerpt from 2017-18 Revenue Program Form received via email on November 29, 2018.

²⁴ West Valley Sanitation District, Annual Report 2020-21. Available at: https://www.westvalleysan.org/assets/docs/annual_reports/29-7.2020-2021%20Annual%20Report.pdf, accessed October 5, 2022.

²⁵ Esteban Delgadillo, PE Mark Thomas. Personal communication with City of Saratoga, December 22, 2022.

future development were identified and added to their CIP. Capacity fees were then developed to fund the CIP. New development that increases wastewater transmission and treatment demand would be required to contribute towards system capacity enhancement improvements through payment of the capacity fee. Further, the District charges connection permit fees for new residential, commercial, and retail connections. Currently, the District is in the design phase for minor slope improvements on N Wolfe Road. Besides that, there are no major expansions planned for the system. The District does not foresee the need for additional staff as a result of project buildout. The need for additional wastewater facilities because of the project, however, cannot be determined at this time.²⁶

Wastewater collected across both districts is conveyed to the SJ/SC Regional Wastewater Facility for treatment. On average, the facility treats 110 MGD of wastewater. In 2020, the SFBRWQCB established wastewater treatment requirements for the SJ/SC Regional Wastewater Facility in an NPDES Permit (Order No. R2-2020-0001). The order establishes a framework for compliance and enforcement applicable to the operation of the Regional Wastewater Facility including its effluent and influent. This Order currently allows dry weather discharges of up to 167 MGD and peak wet weather discharges of up to 261 MGD.

In 2020, the average dry weather influent flow to the SJ/SC Regional Wastewater Facility was 101.99 MGD and the average dry weather effluent flow was 75.3 MGD.²⁷ Most of the final treated water from the SJ/SC Regional Wastewater Facility (approximately 90 percent) is discharged as fresh water into Artesian Slough, a tributary of Coyote Creek. The remaining 10 percent flows to the South Bay Water Recycling system for non-potable uses such as agriculture, landscape irrigation, industrial processes, building cooling, and toilets and urinals around the South Bay.²⁸ Despite a steady increase in population served by the SJ/SC Regional Wastewater Facility, influent wastewater flows at the SJ/SC Regional Wastewater Facility have decreased since the late 1990s due to the loss of heavy industry and increased water conservation.²⁹

Residential development accommodated under the project would increase the city's population by approximately 5,703 residents, which would result in an increased demand for wastewater collection and treatment. Assuming a daily average generation factor of 68 gallons per resident,³⁰

²⁶ Esteban Delgadillo, PE Mark Thomas. Personal communication with Urban Planning Partners, December 14, 2022.

²⁷ Esteban Delgadillo, PE Mark Thomas. Personal communication with Urban Planning Partners, December 14, 2022.

²⁸ San José/Santa Clara Regional Wastewater Facility, Plant Master Plan, November 2013. Available at: <http://www.sanjoseca.gov/DocumentCenter/View/38425>, accessed September 20, 2018.

²⁹ San José/Santa Clara Regional Wastewater Facility, Plant Master Plan, November 2013. Available at: <http://www.sanjoseca.gov/DocumentCenter/View/38425>, accessed September 20, 2018.

³⁰ West Valley Sanitation District. Phone call with Jon Newby, District Manager and Engineer, January 8, 2019.

total average daily dry weather flow (ADWF) is anticipated to increase by 0.39 MGD.³¹ Existing ADWF generated in Saratoga is 2.09 MGD.³² Upon full buildout of the project, total ADWF is projected to be 2.48 MGD. As such, ADWF under full buildout of the project is anticipated to increase by 19 percent.

However, flows to the Regional Wastewater Facility are expected to increase in the future as new homes and commercial uses are built in the facility's service area. The most recent master plan for the SJ/SC Regional Wastewater Facility, dated November 2013, guides improvements at the wastewater facility through 2040 to handle a future inflow capacity of 450 MGD in extreme wet-weather events.³³ The average dry weather influent flow is projected to reach 172 MGD by 2040 and may require a modification to the facility's NPDES permit. Projections of future wastewater flows are based on generation rates provided by West Valley Sanitation District, Cupertino Sanitary District, the City of Milpitas, County Sanitation District 2-3, and the Burbank Sanitary District.

Table IV.O-9 shows the existing and projected future wastewater generated by the city of Saratoga with development under the project. Table IV.O-9 also shows the West Valley Sanitation and Cupertino Sanitary and Districts' existing wastewater flows to the SJ/SC Regional Wastewater Facility and their allowable wastewater flows to the wastewater facility. Last, Table IV.O-9 shows existing and permitted dry weather discharges from the SJ/SC Regional Wastewater Facility. As shown in Table IV.O-9, the West Valley Sanitation District, Cupertino Sanitary District, and SJ/SC Regional Wastewater Facility have excess capacity and would be able to accommodate the incremental increase in wastewater collection and treatment generated by residential development under the project.

The General Plan includes a range of policies and implementation measures to assist in reducing wastewater generation flows in the planning area. Implementation Measure OSC-11.a (currently proposed as OSC-10.a in the General Plan Update) requires that all new development proposals be in compliance with the water conservation provisions of the SJW UWMP.

Additionally, the General Plan includes policies and implementation measures to ensure that adequate wastewater collection and treatment facilities are provided to serve development in the city. Moreover, the Saratoga Municipal Code also contains rules and regulations related to wastewater. Article 7-10 (Sewage Disposal) establishes standards for connecting to the public sanitary sewer system or installing and operating individual on-site sewage disposal systems.

³¹ Calculated as follows: $(68 \times 5,703) = 387,804$ gallons per day or 0.39 MGD.

³² Calculated as follows: $(68 \times 30,667) = 2,085,356$ gallons per day or 2.09 MGD. (2022 population estimate of 30,667 from California Department of Finance.)

³³ San José/Santa Clara Water Pollution Control Plant Master Plan, November 2013. Available at: <http://www.sanjoseca.gov/DocumentCenter/View/38425>, accessed January 7, 2019.

TABLE IV.O-9 DRY WEATHER FLOW

Average Dry Weather Flow (MGD)	Existing Conditions (2014–2022)	Future Conditions (2040)
Generated by Saratoga	2.09 ^a	2.48
West Valley Sanitation District Wastewater Flow to SJ/SC Regional Wastewater Facility	9.7.63 ^b	11.69 ^e
Cupertino Sanitary District Wastewater Flow to SJ/SC Regional Wastewater Facility	3.6 ^a	7.85 ^d
SJ/SC Regional Wastewater Facility Dry Weather Influent Flow	101.9 ^d	172
SJ/SC Regional Wastewater Facility Dry Weather Effluent Flow	75.3 ^d	167 ^f

^a 2022.

^b 2021-22.

^c 2014.

^d 2020.

^e Contractual Treatment Allocation with SJ/SC Regional Wastewater Facility.

^f NPDES Permitted Discharge.

Sources: San Francisco Bay Regional Water Quality Control Board, SJ/SC Water Pollution Control Plant, Order No. R2-2020-0001, National Pollutant Discharge Elimination System No. CA0037842. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2020/February/6a_final_to.pdf, accessed November 1, 2022.

SJ/SC Regional Wastewater Facility, 2017 Annual Self-Monitoring Report, page 4. Available at: <http://www.sanjoseca.gov/Archive.aspx?AMID=161>, accessed March 7, 2018.

Section 7-10.o8o (Connection to Public Sewer) includes regulations regarding the process for connecting to the public sanitary sewer system.

Development facilitated by the project would result in an incremental increase in the demand for wastewater collection and treatment. However, the SJ/SC Regional Wastewater Facility has sufficient capacity to support new infill development within the planning area. As such, buildout of the project would neither result in insufficient wastewater collection and treatment, nor require the construction of new or expanded wastewater treatment facilities. Therefore, impacts related to wastewater collection and treatment would be less than significant.

(3) Stormwater (Criterion 1)

As discussed under Impact HYD-4 in *Section IV.H, Hydrology and Water Quality*, new development or redevelopment under the project could incrementally increase the total impervious area within Saratoga, thus increasing storm water runoff and the need for storm water conveyance facilities. However, all future development accommodated under the project would be subject to State, regional, and local provisions pertaining to stormwater management.

The Cities of Saratoga, Cupertino, Campbell, Los Altos, Monte Sereno, Mountain View, Palo Alto, San José, Santa Clara, and Sunnyvale; the Towns of Los Altos Hills and Los Gatos; Santa Clara

County; and the SCVWD form the Santa Clara permittees under the MS4 permit.³⁴ Provision C.3 of the Municipal Regional Permit (MRP) for New Development and Redevelopment allows the permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges and prevent increased runoff flows. The goal is best accomplished through the implementation of low impact development (LID) techniques.

The City adopted a Storm Drainage Master Plan which was last updated in February 2015. The Storm Drainage Master Plan identifies existing storm drain facilities throughout the city and identifies storm drain lines with direction of flow, bubble ups, catch basins, inlets, manholes, and outfalls. The Storm Drainage Master Plan also identifies private structures and areas in which there are no structures. The Storm Drainage Master Plan is periodically updated to ensure that existing drainage facilities are adequate to handle a large storm event.

The project contains goals, policies, and implementation measures to reduce storm water runoff. Policy LU-6.2 requires development proposals to incorporate stormwater quality features, such as grassy bio-swales, which would reduce stormwater runoff. Policy OSC-10.2 (currently proposed as OSC-9.2 in the General Plan Update) requires the City to consider the use of on-site detention or retention basins to minimize stormwater runoff from sites.

In addition to the provisions outlined above, the project would be required to comply with the Clean Water Act and regulations enforced by SFBRWQCB .

Adherence to all the provisions outlined above would maximize infiltration and rainwater retention, thereby reducing stormwater runoff. Therefore, impacts related to storm water conveyance facilities would be less than significant.

(4) Solid Waste (Criterion 4 and 5)

As described in *Chapter III, Project Description*, the project includes approximately 1,994 new residential dwelling units within the planning area. This new growth would increase the city's population by approximately 5,703 residents. Development and growth in the city under the project would result in an increased generation of solid waste. However, adherence to existing and proposed provisions would mitigate any impact on solid waste infrastructure and related services.

³⁴ San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), San José/Santa Clara Water Pollution Control Plant, Order No. R2-2020-0001, National Pollutant Discharge Elimination System No. CA0037842. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2020/February/6a_final_to.pdf, accessed November 1, 2022.

Under the Santa Clara County IWMP, each jurisdiction in the County is required to divert 50 percent of its solid waste from landfills. Per CalRecycle, in 2020, Saratoga disposed a total of 14,863 tons of waste at the landfill. This figure assumes an estimated disposal rate of 2.6 pounds per person per day for resident population and 11.8 pounds per person per day per employee in the city.

As previously stated, the city of Saratoga is served by the Guadalupe Sanitary Landfill located in San José. As of January 1, 2011, the landfill had a remaining capacity of 11,055,000 cubic yards and is permitted to accept 1,300 tons of material daily. The landfill is anticipated to reach its capacity and be closed in 2048.³⁵

Assuming the disposal rates established by CalRecycle in 2020 remain constant throughout the life of the Housing Element (2031), the growth under the project would result in a total of approximately 14,828 pounds of solid waste per day (5,703 x 2.6) or 5,412,147 pounds of solid waste annually for the resident population. Thus, the project is estimated to generate an additional 2,706 tons of solid waste per year or 7.41 tons per day. This would amount to approximately 0.57 percent of the permitted daily throughput (7.41/1,300) at the Guadalupe Sanitary Landfill.

As the project would not exceed the capacity of the Guadalupe Sanitary Landfill, the project would have a less-than-significant impact on generation or disposal of solid waste.

While there is adequate permitted landfill capacity to accommodate future growth, the General Plan includes a range of policies and implementation measures to further reduce the project's impact on solid waste services. Policy LU-6.3 requires the City to continue to implement the Construction Materials Recycling Program to reduce the quantity of construction debris in local landfills. Implementation Measure LU-6.b requires the City to distribute information regarding the City's Construction Materials Recycling Program during the building permitting process.

The Saratoga Municipal Code contains rules and regulations related to solid waste. Saratoga Municipal Code Article 16-47 Green Building Regulations promotes the redirection of recyclable materials generated during construction away from landfills. Article 16.72 Construction and Demolition Debris requires Recycling Plans for construction and demolition debris for projects involving more than 2,500 square feet of additional floor space. These Recycling Plans must divert at least 50 percent of waste from landfills and are approved and monitored by City staff.

³⁵ CalRecycle, Guadalupe Sanitary Landfill. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1376?siteID=3399>, accessed September 8, 2022.

As previously discussed, the City has complied with State requirements to reduce the volume of solid waste that is delivered to the local landfill. The City will be required to continue to comply with existing and new federal, State, and local statutes and regulations related to solid waste through development under the project.

While development facilitated by the project would result in an increased generation of solid waste in the planning area, future projects would be required to comply with requirements of the project and Saratoga Municipal Code to divert solid waste from the local landfills. In addition, the City will be required to comply with existing and new federal, State, and local statutes and regulations related to solid waste. Therefore, impacts related to solid waste would be less than significant.

c. Cumulative Utilities and Service Systems Impacts

This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development, would result in a cumulatively significant impact with respect to water supply, wastewater, solid waste, or storm drain facilities. This analysis considers whether the incremental contribution from the implementation of the project would be significant.

The geographic area of concern for cumulative utilities services impacts is the city of Saratoga. The intensification of land uses caused by future development under the project together with other development projects in the area could result in the increased demand for utilities, and thereby create a cumulative increase in demand and need for utilities and facilities. However, as described above, future development would be subject to federal and State statutes, connection fees, applicable Municipal Code, and General Plan policies, all of which would ensure that facilities are developed at a rate deemed appropriate. Furthermore, development would occur gradually over time, and would not happen all at once. For these reasons, implementation of the project would result in a less-than-significant cumulative impact

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V. EFFECTS FOUND NOT TO BE SIGNIFICANT OR LESS THAN SIGNIFICANT

This chapter contains a brief analysis of the environmental topics determined to be less than significant relevant to the City of Saratoga's Housing and Safety Elements, and 2040 General Plan Updates. The following topics were excluded from extensive discussion in this EIR: Energy and Mineral Resources. During the scoping phase for this EIR, it was determined that the project would have no impact or a less-than-significant impact related to these topics as a result of the project's characteristics.

A. ENERGY

The project could result in the construction of up to 1,994 new housing units in Saratoga. Pacific Gas & Electric Company (PG&E) provides energy to Saratoga. According to the California Energy Commission, the total electricity usage in PG&E's service area in 2021 was approximately 78,587 million kilowatt-hours (kWH).¹ Approximately 37 percent (29,230 kWH) was attributed to residential energy use.

New development in Saratoga would lead to increased energy consumption during both the construction and operational phases. Construction phases would require energy for the manufacture and transportation of building materials, preparation (e.g., demolition and grading) of each project site, and construction of buildings and associated infrastructure. Once in operation, the completed projects would consume energy for building heating and cooling, lighting, and operation of appliances and electronics. In addition, vehicle trips associated with both construction and operation would consume fuel (primarily gasoline). It's worth noting that development associated with implementation of the project would occur incrementally over time and are dependent on external factors outside of the City's control.

Moreover, construction activities associated with development under the project would be temporary and construction contractors would have a financial disincentive to waste fuel used by the construction equipment. Therefore, it is generally assumed that fuel used during construction would be conserved to the maximum extent feasible. Furthermore, best management practices and regulations enforced by the California Air Resources Board (Title 13, Section 2485 of

¹ California Energy Commission, 2021. Electricity Consumption by Entity. Available at <http://ecdms.energy.ca.gov/elecbyutil.aspx>, accessed October 31, 2022

California Code of Regulations) limit the idling time of diesel construction equipment to five minutes. Therefore, it is anticipated that energy consumption during the construction period would be minimized to the maximum extent practical.

Future development would also comply with applicable provisions of the California Building Code related to energy efficiency and conservation. Furthermore, the City Council will be incorporating reach codes with local modifications (e.g., local ordinances that exceed State requirements such as building standards) into their updated 2022 Building Code Update (as proposed by Silicon Valley Clean Energy and Valley Water), which was adopted by Saratoga City Council on December 7, 2022. The reach codes include additional building electrification and electric vehicle charging requirements. The updated Building Codes went into effect statewide on January 1, 2023, regardless of the City taking any action or not. However, the City can adopt various modifications to the 2022 Building Code Update that are reasonably necessary because of local climatic, geological, and topographical conditions.² Operation of the project would not interfere with the current Renewables Portfolio Standard program requirement for investor-owned utilities, electrical service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030.³ The current 2019 Title 24 Building Efficiency Standards also require newly constructed single-family and low-rise multifamily buildings to install rooftop photovoltaic systems.

The City's Climate Action Plan (CAP), adopted in 2020, includes targets and measures to increase energy efficiency, including:

- EE-1: Green Building Reach Code.
- EE-2: Energy Efficiency.
- EE-3: Public Lighting.
- EE-4: Municipal Energy Efficiency Audit and Retrofits.

Moreover, the Housing Element includes policies and programs to encourage efficient use of energy resources in residential development by increasing awareness regarding energy conservation (Program 1-3.1) and implementing green building practices (Program 1-3.2).

Compliance with existing regulations and the General Plan policies and programs would ensure that future developments under the project provide beneficial support to existing renewable energy and energy efficiency programs. Thus, the project would not result in wasteful, inefficient,

² Saratoga City Council, 2022. Adoption of the 2022 California Building Standards Code with Local Modifications Staff Report, November 2. Available at: https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/1636498/Staff_Report__Revised_11-02-2022_.doc.pdf, accessed December 6, 2022.

³ California Public Utilities Commission, 2022. Renewables Portfolio Standard (RPS) Program. Available at: <https://www.cpuc.ca.gov/rps/>, accessed November 7, 2022.

or unnecessary consumption of energy resources, and would not conflict with any State or local plans for renewable energy or energy efficiency. Therefore, impacts related to energy would be less than significant.

B. MINERAL RESOURCES

Mineral resources in the Saratoga vicinity are limited primarily to sandstone and shale. The Saratoga General Plan does not identify areas within the city as locally important mineral recovery sites. Currently, there are no mines or quarries known to be operating in Saratoga or its sphere of influence. Implementation of the project would not result in quarrying, mining, dredging, or extraction of locally important mineral resources, nor would it deplete any known mineral resource that would be of value to the region and the residents of the state. For these reasons, the project's impact to mineral resources would not be significant.

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VI. ALTERNATIVES ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines require the analysis of a reasonable range of alternatives to the project, which in this EIR is the City of Saratoga's 6th Cycle Housing Element Update (Housing Element), Safety Element, 2040 General Plan Updates, and Associated Rezoning. The reasonable range of alternatives considered should feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.¹ An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The potential feasibility of an alternative may be determined based on a variety of factors, including but not limited to, economic viability, availability of infrastructure, and other plans or regulatory limitations.²

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would substantially lessen the project's significant impacts, even if those alternatives would "impede to some degree the attainment of the project objectives, or would be more costly."³

The three project alternatives considered include:

1. **No Project Alternative:** Under this alternative, the project would not be adopted, and the additional development associated with implementation of the Housing Element Update (1,994 housing units) would not occur. The No Project Alternative assumes that the existing Housing Element would continue to be implemented, and there would be no changes to the existing Safety Element, General Plan, or Zoning Ordinance.
2. **Preserved Agricultural Land Development Alternative:** Under this alternative, the Allendale/Chester Housing Site would not be developed, and the 24 units associated with development at this site would not be developed.
3. **Reduced Vehicle Miles Traveled (VMT) Alternative:** This alternative assumes additional dwelling units (428 units) would be developed within the Saratoga Office Center and Gateway Sites areas.

¹ CEQA Guidelines, Section 15126.6.

² CEQA Guidelines, Section 15126.6(f)(1).

³ CEQA Guidelines, Section 15126.6(b).

The remainder of this chapter is organized as follows: (a) overview of project objectives and impacts, (b) description of alternatives considered and rejected, (c) description and analysis of CEQA project alternatives, and (d) discussion of environmentally superior alternatives.

A. PROJECT OBJECTIVES AND IMPACTS

The proposed project is described in detail in *Chapter III, Project Description*, and the potential environmental effects of the project are analyzed in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*. The project's objectives and impacts are summarized below.

1. Project Objectives

In accordance with CEQA Guidelines Section 15124, an EIR must present a statement of project objectives. In this EIR, and as presented in *Chapter III, Project Description*, the project objectives include the following: goals and policies of the Housing Element Update, goals of the Safety Element, and broad objectives of the 2040 General Plan Updates. These goals and objectives are detailed below.

- Meet the State required Regional Housing Needs Assessment (RHNA) allocation for the 6th Cycle Housing Element planning period of 2023-2031.
- Bring the General Plan into conformance with recently enacted State law.
- Identify housing sites with a collective capacity to meet the City's RHNA, with buffer capacity.
- Locate most housing sites in existing urban areas, near transit and commercial services.

2. Significant Project Impacts

To help define project alternatives that could further reduce or eliminate significant impacts, the impacts identified associated with implementation of the project are listed below. Impacts that can be reduced to a less-than-significant level with implementation of mitigation measures are identified as with an "LTS" after the impact statement. Impacts that are considered significant and unavoidable even with mitigation measures are identified with an "SU" after the impact statement.

a. Air Quality

- **Impact AIR-1:** Construction of residential development under the project would generate criteria air pollutant emissions that could potentially affect regional air quality. (LTS)

- **Impact AIR-2:** Construction of residential development under the project could expose sensitive receptors to substantial concentrations of toxic air contaminants (TACs) and/or fine particulate matter (PM_{2.5}). (LTS)

b. Geology and Soils

- **Impact GEO-1:** New development could result in the potential for destruction of paleontological resources. (LTS)

c. Hazards, Hazardous Materials and Wildfires

- **Impact HAZ-1:** Contaminated soil or groundwater in the subsurface of residential development projects could pose a risk of exposure to hazardous materials. (LTS)
- **Impact HAZ-2:** Residential development located in areas susceptible to wildfire outside of the Wildland Urban Interface (WUI) zone could expose people and structures to an increased risk of exposure to wildfire. (LTS)
- **Impact HAZ-3:** Construction, vegetation management, and maintenance/repair activities associated with residential development under the project could expose people and structures to an increased risk of exposure to wildfire. (LTS)

d. Land Use, Agriculture, and Forestry Resources

- **Impact LU-1:** Implementation of the proposed project would allow new development in areas of the planning area that are designated Unique Farmland, under Williamson Act contract, or include agricultural zoning. (SU)

e. Transportation

- **Impact TRANS-1:** Implementation of the project would generate vehicle miles traveled (VMT) per resident that is greater than 85 percent of the countywide average VMT per resident. (SU)

B. ALTERNATIVES CONSIDERED AND REJECTED

In considering the range of alternatives to be evaluated in this EIR, the following alternatives were identified and were not selected to be further analyzed:

- **Safeway Site.** This potential alternative would convert the Safeway site on Saratoga Sunnysvale Road to a housing development site. This alternative was not further evaluated as this is the only grocery store within Saratoga, and conversion of this site from a grocery store to housing would likely result in an overall increase in VMT within the city as Saratoga residents would likely need to travel further for groceries.

- **West Valley Community College Campus.** This potential alternative included construction of faculty housing at the West Valley Community College Campus. The West Valley Mission Community College District has informed the City that while housing opportunities at both campus' are being studied, no decisions have been made regarding developing additional faculty housing on the West Valley Campus within the next eight years.
- **Increased Development in the Southern Part of the City.** This potential alternative would increase the number of Housing Sites within the southern part of the city. This alternative was rejected given the limited number of parcels large enough to accommodate the increased number of units, the likely increase in VMT given the higher residential VMT within the southern part of the city when compared to other areas, and the placement of additional housing in a high fire hazard area.
- **Increased Number of Accessory Dwelling Units (ADUs).** This potential alternative would increase the number of ADUs included within the Housing Element. To identify and include ADUs as developed units meeting the City's RHNA, communities must analyze historic building permit trends over the last several years to accurately identify a reasonable projection of ADUs to be developed over the planning period. An increase in ADUs would likely exceed the parameters established by California Department of Housing and Community Development (HCD) when identifying the anticipated ADUs included in the Housing Element.

C. CEQA ALTERNATIVES CONSIDERED

The principal characteristics of each alternative, and associated effects relative to the proposed project, are described below for each alternative. The alternatives included are intended to meet the CEQA requirement to consider a reasonable range of alternatives to the project that would feasibly attain most of the basic objectives of the project while avoiding, or substantially lessening, significant impacts.

The selected alternatives are considered to reflect a "reasonable range" of feasible alternatives in that they include scenarios that lessen and/or avoid significant and unavoidable effects and less than significant effects of the proposed project. These selected alternatives would generally align with the basic objectives of the project.

1. No Project Alternative

a. Principal Characteristics

Under the No Project Alternative, the proposed project would not be adopted; therefore, the existing regulatory documents would continue to be in effect. The No Project alternative would

include development that could occur even without the adoption of the project. The existing Housing Element (2015-2023) identifies a RHNA of 439 units. Approximately 225 units were developed under the last Housing Element cycle, leaving 215 units to be developed during this cycle. Under the No Project Alternative, any residential development would occur under the existing zoning; no new zoning districts would be developed or adopted under this alternative. Mitigation measures would not be applicable to this alternative. However, implementation of mitigation measures may be proposed on a project-by-project basis as necessary and feasible.

It should be noted that if the City were to adopt the No Project Alternative, it is possible that additional development would be constructed under a provision of the California Housing Accountability Act (HAA) called the "Builder's Remedy." If a municipality does not have a Housing Element certified by HCD, the HAA allows developers of affordable housing projects (i.e., projects with at least 20 percent low-income or 100 percent moderate-income housing) to bypass the zoning code and General Plan requirements of cities that are out of compliance with the Housing Element Law. This can result in development that exceeds adopted development standards (e.g., height and density standards) and a city would have a very limited ability to deny qualifying housing development projects. Thus, the City would have little to no influence regarding the location, size, and density of proposed developments. Furthermore, if the City were to adopt the No Project Alternative, the City could face a legal challenge and could be ordered by a court to adopt a new Housing Element. For these reasons the No Project Alternative is legally infeasible.

Given the speculative nature of determining the amount of housing that could occur under a Builder's Remedy situation, this alternative includes an analysis of the 215 units, as described above.

b. Relationship to Project Objectives

The No Project Alternative would not achieve, or achieve to a lesser degree, the following project goals and objectives:

(1) Housing Element Update

Goal 1: Housing Production and Variety

A housing stock comprising a variety of housing and tenancy types at a range of prices, within close proximity to services and opportunity, which meets the varied needs of existing and future City residents, who represent a full spectrum of age, income, and other demographic characteristics.

- *Policy 1.1:* Provide adequate capacity to meet the RHNA obligation.
- *Policy 1.2:* Allow more multi-family housing through rezoning, lot consolidation incentives, and other programs.

- *Policy 1.3:* Incentivize efficient buildings and conservation.

Goal 3: Removal of Constraints to the Production of Housing

Removal of governmental policies or regulations that unnecessarily constrain the development or improvement of market-rate or affordable housing.

- *Policy 3.2:* Periodically review and update the Zoning Ordinance that constrain development and stay abreast of updates to State law to reduce constraints to emergency shelters, low barrier navigation centers, supportive housing, and group homes.
- *Policy 3.3:* Establish objective design standards to facilitate streamlined project permitting and update existing design guidelines.

Goal 4: Access to Housing Opportunities

Promote through community outreach and education housing information and resources designed for persons with special housing needs.

- *Policy 4.1:* Incentivize affordable housing development by leveraging density bonuses.
- *Policy 4.2:* Address the special needs of persons with disabilities, including developmental disabilities, through provision of supportive and accessible housing that allows persons with disabilities to live independent lives.
- *Policy 4.3:* Support extremely low-income households and Saratoga workers through incentive programs.

Goal 5: Affirmatively Furthering Fair Housing.

Promote equal opportunity for all residents to reside in the housing of their choice regardless of their special characteristics as protected under State and federal fair housing law.

- *Policy 5.1:* Provide for the production of additional affordable housing through market incentives and improvements and developer partnerships.
- *Policy 5.2:* Improve awareness, access, and use of education, training, complaint investigation, mediation services of the fair housing service provider, particularly in areas sensitive to displacement, low-income, racial/ethnic concentration, disability, or other fair housing considerations.
- *Policy 5.3:* Prohibit discrimination in the sale or rental of housing with regard to characteristics protected under State and federal fair housing laws.

(2) Safety Element Update Goals

The goals provided within the updated Safety Element include:

- *Goal SAF-1:* A community protected from the impacts associated with land instability and geologic hazards.
- *Goal SAF-2:* Ensure residents and businesses are protected from seismically induced hazards.
- *Goal SAF-3:* Ensure properties are well from flooding and flood induced hazards.
- *Goal SAF-4:* Ensure the community is better equipped to address vulnerabilities associated with urban and wildland fires.
- *Goal SAF-5:* A community that promotes a culture of preparedness and is ready to respond to future natural and human caused hazard events.
- *Goal SAF-6:* A community prepared for future climate related impacts.

(3) 2040 General Plan Objectives

The broad goals described in this chapter in 2040 General Plan Updates can be distilled into more focused objectives. The focused project objectives for the 2040 General Plan Updates are as follows:

- Address the general plan requirements of State law.

c. Analysis of the No Project Alternative

(1) Aesthetics

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. Under this alternative, no new zoning districts would be developed, therefore there would not be an increase in height associated with the new zoning districts as is proposed under the project. Like the proposed project, any new development under the No Project Alternative would be subject to the development and design standards for each respective zoning district (e.g., Multi-Family Residential Districts). Further, all new single-family residential development would be subject to the "Single-Family Residential Design Review Handbook." Because this alternative would likely result in significantly less development than the proposed project, this alternative would result in a reduced less-than-significant impact, when compared to the project.

(2) Air Quality

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. Like the proposed project,

development associated with this alternative would be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all applicable General Plan goals and policies. While this alternative would not result in a reduction in baseline air quality pollutants, this alternative would result in a less-than-significant impact to air quality and impacts from this alternative would be reduced when compared to the proposed project.

(3) Biological Resources

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. The location and nature of development under this alternative would continue to be guided by the Saratoga General Plan and Municipal Code. Development associated with this alternative would be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to protect sensitive biological resources. Given the reduced amount of development associated with this alternative, biological resources impacts under the No Project Alternative would be less than significant and impacts from this alternative would be reduced when compared to the project.

(4) Cultural and Tribal Resources

As with the project, development under the No Project Alternative could uncover previously unknown cultural or tribal resources or destroy/change structures that could be considered historic. As future development and infrastructure projects are considered by the City, each project would be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable state and local regulations. Subsequent development projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Similar to the project, this alternative would have a less-than-significant impact on cultural resources with adherence to existing regulations.

(5) Geology and Soils

Development under this alternative would result in less than significant geology and soils impacts. The impacts would be similar to those of the project as both the project and this alternative would be exposed to the same soil and geologic conditions. The risk to structures from seismic ground shaking and seismic related ground failure is reduced through adherence to the design and materials standards set forth in the California Building Code and recommendations in site-specific geotechnical reports. The No Project Alternative would have a less-than-significant geology impact and would be considered similar to the project.

(6) Greenhouse Gas Emissions

This alternative would not result in a reduction in baseline greenhouse gas emissions (GHG). However, given the significantly lesser number of units that would be developed under this alternative when compared to the project, the No Project Alternative would result in a lesser amount of GHG. Residential development under this alternative would be required to demonstrate consistency with the GHG reduction measures identified in the City's Climate Action Plan (CAP), such as requiring the use of electric heat pump technology instead of natural gas for space and water heating; therefore, future development would not result in a cumulatively considerable contribution to global climate change. Additionally, further implementation of the existing Housing Element would not fundamentally conflict with a plan adopted for the purposes of reducing GHG emissions. The No Project Alternative would result in less than significant GHG impacts and reduced GHG emissions compared to the project.

(7) Hazards, Hazardous Materials, and Wildfires

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. As with the project, hazardous materials would be present during the construction and operation of development associated with the No Project Alternative. Similar to the proposed project, under the No Project Alternative mitigation would be required for the following impacts: (1) the disturbance of contaminated soil or groundwater during construction activities could result in impacts to construction workers, the public, and the environment; (2) residential development in areas susceptible to wildfire that are outside of the WUI zone would not be required to comply with the Municipal Code requirements for the WUI zone which could create an increased risk of exposure to wildfire for future occupants of such new developments; and (3) the potential for construction, vegetation management, and maintenance/repair activities associated with residential development under the project to increase the risk of starting fires in wildfire prone areas. Additionally, development associated with this alternative would be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to promote resiliency against hazards. While this alternative reduces the presence of hazardous materials below baseline conditions, the No Project Alternative would have a less-than-significant hazard and wildfire impacts.

(8) Hydrology and Water Quality

Similar to the proposed project, development associated with the No Project Alternative would be required to adhere to all existing water quality regulations and programs. While this alternative would not reduce hydrology and water quality impacts on baseline conditions, the No Project Alternative would have a less-than-significant hydrology impact and would be considered similar to the proposed project.

(9) Land Use, Agriculture, and Forestry Resources

Under the No Project Alternative, development of housing would still occur in the city, but at a lesser scale when compared to the project, as discussed above. This alternative assumes continuation of the existing Housing Element and would not cause a significant impact related to a plan, policy, or regulation adopted to avoid or mitigate an environmental impact. The existing Housing Element does not include inventory sites with agricultural uses; as such, the potential agriculture impact would be reduced to a less-than-significant impact. Additionally, as with the proposed project, the No Project Alternative would not divide an established community. While this alternative would not reduce land use impacts on baseline conditions, the No Project Alternative would have a less-than-significant land use impact and would be considered reduced compared to the proposed project.

(10) Noise

The No Project Alternative would result in significantly less development than the proposed project. Similar to the proposed project, development under the No Project Alternative could result in construction-related temporary increase in vibration or ambient noise levels requiring mitigation measures. However, development associated with this alternative would be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to reduce noise. While this alternative would not reduce noise below baseline conditions, the potential noise impacts would be less than significant and would be considered similar to the proposed project.

(11) Parks and Recreation

This alternative would result in a reduced level of development compared to the proposed project and a reduced demand for parks and recreation facilities. Similar to the proposed project, development under this alternative would be required to comply with the policies and implementation measures outlined in the City's General Plan and the provisions outlined in the City of Saratoga Municipal Code. While this alternative would not reduce baseline demand for parks and recreation facilities, this alternative would result in a less-than-significant impact to parks and recreation facilities and would have reduced impacts compared to the project.

(12) Population and Housing

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. This alternative would result in a reduced amount of residential development, and associated population growth, compared to the proposed project. Similar to the proposed project, development under this alternative would be required to comply with the policies and implementation measures outlined in the City's General

Plan and the provisions outlined in the City of Saratoga Municipal Code. While this alternative would not reduce the population to an amount lesser than baseline conditions, this alternative would result in a reduced less than significant impact compared to the project.

(13) Public Services

This alternative would result in a reduced amount of development and related population growth, which would result in less demand for public services compared to the project. Similar to the proposed project, development under this alternative would be required to comply with the policies and implementation measures outlined in the City's General Plan and the provisions outlined in the City of Saratoga Municipal Code. While this alternative would not reduce baseline demand for public services, this alternative would result in a reduced less than significant public services impact compared to the project.

(14) Transportation

Under the No Project Alternative, residential development in the city could still take place, but at a lesser intensity than that provided for under the project. Under this alternative the existing Housing Element Update, which is part of the General Plan, would be extended. As this is an adopted element, it would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. It is possible that this alternative could result in VMT impact requiring mitigation measures on a project-by-project basis. Subsequent new residential development, and other future projects, including any new roadway, bicycle, pedestrian, and transit infrastructure improvements would be designed according to the City's General Plan and other City standards. The City's General Plan and other City standards and regulations include policies that would ensure efficient circulation and adequate access in the city, which would help facilitate emergency response. Emergency access to new development sites would be subject to review by the City and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. The transportation impacts associated with this alternative would be reduced when compared to the project but would still be significant and unavoidable.

(15) Utilities and Service Systems

This alternative would result in a reduced amount of development and population growth, which would result in less demand for utilities services compared to the project. As with the proposed project, development under this alternative would be required to comply with all applicable federal, state, and local provisions that relate to utilities and services. Given the reduced amount of development and lesser demand for utilities services when compared to the project, as well as requirements for compliance with all applicable provisions, this alternative would have a less-than-significant utilities and service system impact when compared to the project.

2. Preserved Agricultural Land Development Alternative

a. Principal Characteristics

Under the Preserved Agricultural Land Development Alternative (Preserved Ag Land Alternative), the 24 units associated with development at the Allendale/Chester Housing Site would not be developed as a part of the opportunity sites under the Housing Element Update. However, all other sites identified within the Housing Element Update would be developed, and all the components of the project (Housing Element Update, Safety Element Update, 2040 General Plan Updates, and Associated Rezoning) would be adopted. Development under this alternative would result in the construction of 1,970 dwelling units over the next eight years, which would still fulfill the City's RHNA obligations, but would reduce the buffer built into the Housing Sites Inventory.

b. Relationship to Project Objectives

The Preserved Ag Land Alternative would achieve the following project objectives to a lesser degree than the project:

(1) Housing Element Update

Goal 1: Housing Production and Variety

A housing stock comprising a variety of housing and tenancy types at a range of prices, within close proximity to services and opportunity, which meets the varied needs of existing and future City residents, who represent a full spectrum of age, income, and other demographic characteristics.

- *Policy 1.2:* Allow more multi-family housing through rezoning, lot consolidation incentives, and other programs.

This alternative would result in slightly fewer multi-family housing units and would thus achieve this objective to a slightly lesser degree.

c. Analysis of the Preserved Agricultural Land Development Alternative

(1) Aesthetics

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. This alternative would allow the same increase in height associated with the new zoning districts proposed as part of the project, and there would be a similar amount of new residential development within the city. As with the proposed project, any new development under this alternative would be subject to the

development and design standards for each respective zoning district (e.g., Multi-Family Residential Districts). There would be no new development on the Allendale/Chester Housing Site, which would remain undeveloped. Additionally, all new single-family residential development would be subject to the "Single-Family Residential Design Review Handbook." This alternative would result in a less-than-significant aesthetic impact, similar to the proposed project.

(2) Air Quality

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Like the proposed project, this alternative would result in potentially significant impacts to air quality. Similar to the proposed project, under this alternative General Plan Policy LU-15.1 would be applicable which requires future development projects to implement the Bay Area Air Quality Management District's (BAAQMD's) recommended dust controls measures during construction. The BAAQMD considers implementation of best management practices (BMPs) to control dust during construction sufficient to reduce potential dust impacts to a less-than-significant level. Under this alternative, Mitigation Measure AIR-1, required to address construction emissions for projects with more than 114 single-family units or 240 multi-family units, would still be required. Mitigation Measure AIR-2, addressing exposure to TACs and/or PM_{2.5}, would be required under this alternative. Air quality impacts associated with this alternative would be reduced to less than significant levels with the identified mitigation measures and would be similar to the proposed project.

(3) Biological Resources

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. The general location and nature of development considered under this alternative would be similar to the proposed project and to be guided by the Saratoga General Plan and Municipal Code. Future housing projects would continue to be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to protect sensitive biological resources. Development under the project would be performed in accordance with the General Plan policies, which would ensure that potential impacts on biological resources would be minimized. Similar to the proposed project, under this alternative, implementation of Mitigation Measure BIO-1, which serves to reduce potential glare and impacts to riparian areas and birds, would still be implemented, which would ensure that potential impacts on biological resources would be less than significant. Biological resources impacts associated with this alternative would be similar to the proposed project.

(4) Cultural and Tribal Resources

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. As with the project, development under this alternative could uncover previously unknown cultural or tribal resources or destroy/change structures that could be considered historic. As future development and infrastructure projects are considered by the City, each project would be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable state and local regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Similar to the proposed project, Mitigation Measures CULT-1, CULT-2, and CULT-3 would reduce impacts to undiscovered archaeological resources, tribal remains, and human remains. Similar to the proposed project, cultural and tribal resource impacts associated with this alternative would be less than significant.

(5) Geology and Soils

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Similar to the proposed project, this alternative would result in potentially significant but mitigable geology and soils impacts as both the project and alternative would be exposed to the same geologic conditions. The risk to structures from seismic ground shaking and seismic related ground failure is reduced through adherence to the design and materials standards set forth in the California Building Code and recommendations in site-specific geotechnical reports. Mitigation Measures GEO-1, regarding paleontological resources, would be applicable under this alternative. This alternative would have less than significant geology and soils impacts with the identified mitigation measure, and would be considered similar to the project.

(6) Greenhouse Gas Emissions

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Similar to the proposed project, residential development under this alternative would be required to demonstrate consistency with the GHG reduction measures identified in the CAP, such as requiring the use of electric heat pump technology instead of natural gas for space and water heating; therefore, future development would not result in a cumulatively considerable contribution to global climate change. Additionally, this alternative would not fundamentally conflict with a plan adopted for the purposes of reducing GHG emissions. This alternative would have less than significant GHG emissions impacts and would be considered similar to the project.

(7) Hazards, Hazardous Materials, and Wildfires

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Similar to the proposed project, hazardous materials would be present during the construction and operation of development associated with this alternative. Under this alternative, mitigation measures would be required for the following impacts: (1) the disturbance of contaminated soil or groundwater during construction activities could result in impacts to construction workers, the public, and the environment; (2) residential development in areas susceptible to wildfire that are outside of the WUI zone (and would therefore not be required to comply with the Municipal Code requirements for the WUI zone) could create an increased risk of exposure to wildfire for future occupants of such new developments; and (3) the potential for construction, vegetation management, and maintenance/repair activities associated with residential development under the project to increase the risk of starting fires in wildfire prone areas. This alternative would have less than significant hazard and wildfire impacts with the identified mitigation measures, HAZ-1, HAZ-2, and HAZ-3, and would be considered similar to the project.

(8) Hydrology and Water Quality

Similar to the proposed project, development associated with this alternative would be required to adhere to all existing water quality regulations and programs. Because this alternative would result in the development of fewer residential units, a lesser number of impervious surfaces would be developed when compared to the proposed project. This alternative would have a less-than-significant hydrology impact and would be considered similar to the proposed project.

(9) Land Use, Agriculture, and Forestry Resources

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. As with the proposed project, this alternative would not divide an established community and would not cause a significant impact related to a plan, policy, or regulation adopted to avoid or mitigate an environmental impact. Under this alternative the Allendale/Chester Housing Site (which is identified by the FMMP as Unique Farmland, has Agricultural Preserve zoning, and is in the non-renewal process for a Williamson Act Contract) would not be developed. As this parcel would not be developed, this alternative would not result in a loss of agricultural land so that related impacts would be less than significant, similar to the proposed project.

(10) Noise

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Similar to the proposed

project, this alternative could result in construction-related temporary increases in vibration or ambient noise levels requiring mitigation measures. Similar to the proposed project, the noise impacts from operation of residential developments under the project, including vehicular noise, would be less than significant with implementation of the identified mitigation measures (Mitigation Measures NOISE-1 and NOISE-2). Therefore, the potential noise impacts for this alternative would be less than significant and would be considered similar to the proposed project.

(11) Parks and Recreation

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. This alternative would result in a slightly reduced level of development compared to the proposed project but a similar level of demand for parks and recreation facilities. Like the proposed project, development under this alternative would be required to comply with all applicable local, State, and federal regulations and General Plan goals and policies. This alternative would result in a less-than-significant parks and recreation impact, similar to the proposed project.

(12) Population and Housing

This alternative would result in a slightly reduced level of residential development, and associated population growth, compared to the proposed project. Based on the average household size in Saratoga in 2020 (2.86), buildout of the 1,970 units proposed under this alternative could result in an additional 5,634 persons to the City's total population. Given that this projected increase in population is lesser than what is projected under the proposed project, this alternative would result in a less-than-significant impact, similar to the project.

(13) Public Services

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. This alternative would result in a slightly reduced amount of development and related population growth but would result in a similar demand for public services as the proposed project. This alternative would result in a similar less than significant public services impact as the proposed project.

(14) Transportation

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. Because VMT per capita is calculated as the total annual miles of vehicle travel divided by the total population in the study area, as total population decreases, annual VMT per capita increases. Therefore, while this

project would result in a slightly reduced amount of development within the city, it is likely this alternative would result in an increase in per capita VMT so that identified project Mitigation Measure TRANS-1 would be applicable. Similar to the project, new residential development, and other future projects, including any new roadway, bicycle, pedestrian, and transit infrastructure improvements would be designed according to the City's General Plan and other City standards. The City's General Plan and other City standards and regulations include policies that would ensure efficient circulation and adequate access in the city, which would help facilitate emergency response. Emergency access to new development sites would be subject to review by the City and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. Transportation impacts associated with this alternative would be significant and unavoidable, similar to the proposed project.

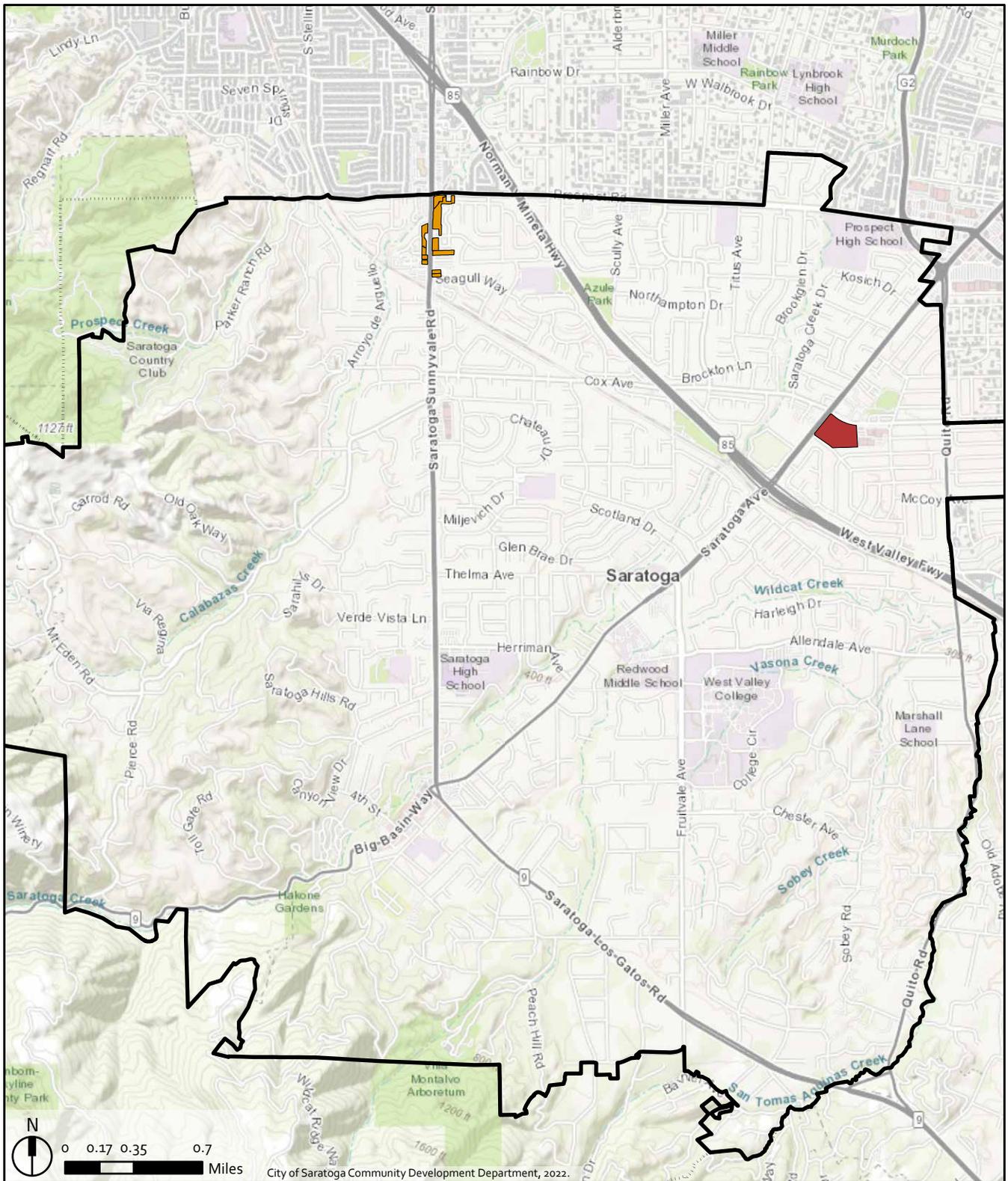
(15) Utilities and Service Systems

The Preserved Ag Land Alternative assumes a slightly decreased level of residential development (1,970 units) compared to the project, which proposes 1,994 units. This alternative would result in a slightly reduced amount of development and population growth, but would result in a similar demand for utilities services compared to the project. This alternative would have a less-than-significant utilities impact and would be considered similar to the project.

3. Reduced VMT Alternative

a. Principal Characteristics

This alternative assumes 428 units additional to the project would be developed within the Saratoga Office Center and Gateway Sites areas in the northern part of the city along Saratoga Sunnyside Road, which is a major arterial roadway (as shown in Figure VI-1). All inventory sites within the Housing Element Update would be developed, and all the components of the project (Housing Element Update, Safety Element Update, 2040 General Plan Updates, and Associated Rezoning) would be adopted. Development under this alternative would result in the construction of 2,422 dwelling units over the next eight years. Table VI-1 shows the location of the additional parcels that would be developed under this alternative. This alternative assumes that the Gateway and Office Park parcels would be rezoned, as necessary, to allow for the development of the additional 428 units. This alternative would result in an increase in population within the city compared to the project but would likely result in a decrease in overall VMT per capita given that the additional parcels to be developed are located in northern areas of the city near commercial and service areas and transit lines, where residential VMT is low when compared to the southern areas of the city.



- Gateway Sites
- Saratoga Office Center
- Saratoga City Limits
- Saratoga Sphere of Influence

Figure VI-1
Reduced VMT Alternative

TABLE VI-1 REDUCED VMT ALTERNATIVE ADDITIONAL HOUSING SITES

APN	Address	Acreage	Very Low-Income	Low-Income Units	Moderate-Income Units	Above Moderate-Income Units	Total Units
Saratoga Office Center							
38912017	12900 Saratoga Ave.	10.12	82	46	49	127	304
Gateway Sites							
386 01 027	12000 Saratoga Sunnyvale Rd. (Growing Tree Learning Ctr)	0.89	4	2	2	5	13
389 01 026	12180 Saratoga Sunnyvale Rd. (Peets)	2.92	12	7	7	18	44
386 57 022	12224 Saratoga Sunnyvale Rd.	0.83	3	2	2	5	12
386 30 039	12230 Saratoga Sunnyvale Rd. (Saratoga Star Aquatics)	1.06	4	2	3	7	16
386 52 032	12300 Saratoga Sunnyvale Rd. (Stop and Save)	0.33	1	1	1	2	5
386 52 033	12306 Saratoga Sunnyvale Rd. (Cleaners)	0.33	1	1	1	2	5
366 35 019	12175 Saratoga Sunnyvale Rd. (Jakes Pizza)	1.05	4	2	3	7	16
336 36 001	12241 Saratoga Sunnyvale Rd.	0.36	1	1	1	2	5
366 56 028	12295 Saratoga Sunnyvale Rd.	0.24	1	1	1	1	4
366 56 027	12297 Saratoga Sunnyvale Rd.	0.24	1	1	1	1	4
Total			114	66	71	177	428

Source: City of Saratoga Community Development Department, 2022.

b. Relationship to Project Objectives

The Reduced VMT Alternative would achieve all the project objectives.

c. Analysis of the Reduced VMT Alternative

(1) Aesthetics

Because all inventory sites within the Housing Element Update would be developed, and all the components of the project (Housing Element Update, Safety Element Update, 2040 General Plan Updates, and Associated Rezonings) would be adopted under this alternative, this alternative would have the same increase in height associated with the new zoning districts proposed as part of the project. Additionally, given the increase in development associated with this alternative, there would be more buildings developed when compared to the proposed project. Similar to the proposed project, any new development under this alternative would be subject to the development and design standards for each respective zoning district (e.g., Multi-Family Residential Districts). Additionally, all new single-family residential development would be subject to the "Single-Family Residential Design Review Handbook." Because new development under the Reduced VMT Alternative would be required to comply with applicable development and design standards, this alternative would result in slightly greater aesthetic impacts but would still result in less than significant impacts, similar to the project.

(2) Air Quality

This alternative would result in an increase in population within the city but would likely result in a decrease in overall VMT per capita given the location of the additional parcels to be developed. Similar to the proposed project, under this alternative General Plan Policy LU-15.1 would be applicable, which requires future development projects to implement the BAAQMD's recommended dust controls measures during construction. The BAAQMD considers implementation of BMPs to control dust during construction sufficient to reduce potential dust impacts to a less-than-significant level. Under this alternative, Mitigation Measure AIR-1, required to address construction emissions for projects with more than 114 single-family units or 240 multi-family units, and Mitigation Measure AIR-2, addressing exposure to TACs and/or PM_{2.5}, would be required under this alternative. This alternative would result in a significant impact related to increased air emissions; however, impacts would be reduced to less than significant levels with the identified mitigation measures.

(3) Biological Resources

The amount of residential development under this alternative would be increased compared to the proposed project, so that impacts to biological resources would be minimally increased. Development would continue to be guided by the Saratoga General Plan and Municipal Code. Future housing projects would continue to be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations. Additionally, development under the project would be performed in accordance with the updated General Plan

policies, ensuring that potential impacts on biological resources would be less than significant. Under this alternative, implementation of Mitigation Measure BIO-1, which serves to reduce potential glare and impacts to riparian areas and birds, would still be implemented. Because development under the Reduced VMT Alternative would be required to comply with all applicable regulations, including Mitigation Measure BIO-1, biological resources impacts associated with this alternative would be less than significant, similar to the proposed project.

(4) Cultural and Tribal Resources

As with the project, development under this alternative could uncover previously unknown cultural or tribal resources or destroy/change structures that could be considered historic. As future development and infrastructure projects are considered by the City, each project would be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable state and local regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Cultural and tribal resource impacts associated with this alternative would be potentially significant, but mitigable to less than significant levels, similar to the proposed project.

(5) Geology and Soils

This alternative would result in similar geology and soils impacts as both the project and alternative would be exposed to the same geologic conditions. The risk to structures from seismic ground shaking and seismic related ground failure is reduced through adherence to the design and materials standards set forth in the California Building Code and recommendations in site-specific geotechnical reports. Mitigation Measures GEO-1, regarding paleontological resources, would be applicable under this alternative. This alternative would have less than significant geology and soils impacts with the identified mitigation measure, and would be considered similar to the project.

(6) Greenhouse Gas Emissions

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. As with the proposed project, residential development under this alternative would be required to demonstrate consistency with the GHG reduction measures identified in the CAP, such as requiring the use of electric heat pump technology instead of natural gas for space and water heating; therefore, future development would not result in a cumulatively considerable contribution to global climate change. Additionally, this alternative would not fundamentally conflict with a plan adopted for the purposes of reducing GHG emissions. This alternative would result in slightly greater GHG

emission impacts but would still result in a less-than-significant impact, similar to the proposed project.

(7) Hazards, Hazardous Materials, and Wildfires

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. Similar to the proposed project, hazardous materials would be present during the construction and operation of development associated with this alternative. Under this alternative, mitigation measures would be required for the following impacts: (1) the disturbance of contaminated soil or groundwater during construction activities could result in impacts to construction workers, the public, and the environment; (2) residential development in areas susceptible to wildfire that are outside of the WUI zone (which would not be required to comply with the Municipal Code requirements for the WUI zone) could create an increased risk of exposure to wildfire for future occupants of such new developments; and (3) the potential for construction, vegetation management, and maintenance/repair activities associated with residential development under the project to increase the risk of starting fires in wildfire prone areas. This alternative would, similar to the project, have a less-than-significant hazard and wildfire impacts with implementation of Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 as outlined in *Section IV.G, Hazards, Hazardous Materials, and Wildfires*.

(8) Hydrology and Water Quality

Similar to the proposed project, development associated with this alternative would be required to adhere to all existing water quality regulations and programs. This alternative would have a less-than-significant hydrology impact similar to the proposed project.

(9) Land Use, Agriculture, and Forestry Resources

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. As with the proposed project, this alternative would not divide an established community and would not cause a significant impact related to a plan, policy, or regulation adopted to avoid or mitigate an environmental impact. This alternative would, however, result in a significant and unavoidable impact related to development of parcels with agricultural zoning and/or identified as unique farmland by the Farmland Mapping and Monitoring Program (FMMP). This alternative would result in a similar significant and unavoidable land use impact related to loss of agricultural land as the proposed project.

(10) Noise

Similar to the proposed project, this alternative could result in construction-related temporary increases in vibration or ambient noise levels requiring mitigation measures. Similar to the proposed project, the noise impacts from operation of residential developments under the project, including vehicular noise, would be less than significant. With implementation of Mitigation Measures NOISE-1 (Construction Noise Controls) and NOISE-2 (Vibration Analysis) potential noise impacts would be less than significant but would be slightly increased compared to the proposed project.

(11) Parks and Recreation

This alternative would result in an increased level of development compared to the proposed project and an increased level of demand for parks and recreation facilities. Any new development associated with this alternative would, however, be required to comply with General Plan Policies OSC-3.1 and OSC-4.a and Article 14-25 of the Saratoga Municipal Code. While this alternative would result in slightly greater impacts to parks and recreation facilities, impacts would still be considered less than significant, similar to the project.

(12) Population and Housing

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. This alternative would result in an increased amount of residential development, and consequently, greater population growth when compared to the proposed project. As noted in *Section IV.L, Population and Housing*, Saratoga is located in the West Santa Clara County superdistrict (Superdistrict No. 10) used by ABAG for sub-regional growth projections, as presented in Plan Bay Area 2050. The number of households in this superdistrict is projected to grow by 42 percent between 2015 and 2050, from 121,000 households to 172,000 households, representing 4 percent of growth in the San Francisco Bay region.⁴ Projections associated with implementation of the project would be inconsistent with this anticipated increase. Because this alternative would result in slightly greater impacts to population and housing, impacts would be considered significant, unlike the proposed project.

(13) Public Services

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part

⁴ Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area 2050, Final Blueprint Growth Pattern, updated January 21, 2021.

of the city along Saratoga Sunnyvale Road. This alternative would result in an increased amount of development and related population growth, which would result in an increased demand for public services. This alternative would result in slightly greater impacts to public services, but would still result in a less-than-significant impact, similar to the proposed project.

(14) Transportation

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. This alternative would result in an increase in population within the city but would likely result in a slight decrease in overall VMT per capita from 17.9 to 17.8. This slight decrease in overall VMT per capita would likely occur given that the additional parcels to be developed are located in northern areas of the city near commercial and service areas and transit lines where residential VMT is lower when compared to the southern areas of the city. Subsequent new residential development, and other future projects, including any new roadway, bicycle, pedestrian, and transit infrastructure improvements would be designed according to the City's General Plan and other City standards. The City's General Plan and other City standards and regulations include policies that would ensure efficient circulation and adequate access in the city, which would help facilitate emergency response. Emergency access to new development sites would be subject to review by the City and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. Given the diminutive reduction in total VMT per capita associated with this alternative, transportation impacts under the Reduced VMT Alternative would remain significant and unavoidable, similar to the project.

(15) Utilities and Service Systems

The Reduced VMT Alternative assumes additional residential development when compared to the project, specifically within the Saratoga Office Center and Gateway Sites in the northern part of the city along Saratoga Sunnyvale Road. This alternative would result in an increase in development and population growth when compared to the proposed project, which would result in an increase in demand for water and other utilities services. As outlined in Table IV.O-5 in *Section IV.O, Utilities and Service Systems*, there is adequate water supply to meet projected demands through 2045. This alternative would have slightly greater impacts to utilities and service systems but would still result in a less-than-significant impact, similar to the proposed project.

D. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. Typically, the No Project Alternative is considered the environmentally superior alternative in the strict sense that environmental impacts associated with implementation of the proposed project would result in the least amount of development of all the alternatives examined. However, as noted previously in this chapter, adoption of a No Project Alternative would not result in HCD certifying the City's Housing Element, which would allow for additional development under the Builder's Remedy. Given the speculative nature of the timing and type of development that could occur under the Builder's Remedy, this alternative's analysis only looked at the potential environmental impacts associated with the remaining RHNA under the existing Housing Element. However, it should be noted that additional unanticipated development could occur if the city does not have a Housing Element that has been certified by HCD.

In cases like this where the No Project Alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. Comparison of the environmental impacts associated with each alternative as described above, indicates that the Preserved Ag Land Alternative would represent the next-best alternative in terms of reduced significant environmental impacts. Implementation of this alternative would result in reduced environmental impacts than would be produced by the proposed project, but would not fully meet the project objectives set forth above.

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VII. CEQA REQUIRED ASSESSMENT CONCLUSIONS

This chapter presents a summary of the impacts of the project in several subject areas specifically required by CEQA Guidelines Section 21100, including growth-inducing impacts, significant unavoidable impacts, significant irreversible environmental changes, and effects not found to be significant. These findings are based on the analysis provided in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*.

A. GROWTH-INDUCING IMPACTS

According to Section 15126.2 (d) of the CEQA Guidelines, growth-inducing impacts of a proposed project must be discussed in the EIR. Growth-inducing impacts are those effects of a proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without implementation of a proposed project. Additionally, growth may be induced through the provision of infrastructure or service capacity that would accommodate new development. Typically, the growth inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. Based on the definition of growth inducement, a General Plan, and its associated Housing Element is inherently growth-inducing because it must, by law, accommodate existing and projected housing needs as determined by California Department of Housing and Community Development (HCD) and Association of Bay Area Governments (ABAG) and described within *Chapter III, Project Description*.

As described within *Chapter III, Project Description*, to accommodate the existing and projected housing needs of the City of Saratoga, the Housing Element is being updated as part of the project to identify 87 housing sites intended to accommodate the potential for 1,994 new residential units located throughout the city. In conjunction with identification of these 87 housing sites, the City will rezone 26 of these sites to allow for residential development or more intense residential development than presently permitted, along with comparable General Plan amendments which will be required to make the land use designations of the sites consistent with the zoning.

While the Housing Element encourages the development of new housing, the actual construction of new units will be driven by market forces, the motivation of property owners, subsidies for affordable housing, and other factors outside the control of the City. Nonetheless, this possible number of 1,994 new housing units is used as a basis for estimating the effect this level of development could have on Saratoga's population. Using 2020 U.S. Census data on average household size, population projections can be estimated to evaluate the potential for induced growth as part of the project. According to such data, the average household's size in the city of Saratoga is 2.86 persons.¹ Applying this average, development of 1,994 new housing units would increase the population in Saratoga by approximately 5,703 people. It is important to note that with respect to household size, the growth forecasts presented in Plan Bay Area 2050 were developed using the Bay Area UrbanSim 2 Land Use Model.² The model, which synthesizes U.S. Census data, developed a region-wide average household size of 2.7 persons per household. Applying this average, development of 1,994 new housing units would increase the population in Saratoga by approximately 5,304 people.

In addition to the reasons cited above, other factors would also serve to reduce this number in actual practice. Firstly, many of the new units would be accessory dwelling units (ADUs) added to existing residential properties, studio apartments, and one-bedroom apartments, all of which would typically provide a residence for one or two people. Secondly, existing residents of Saratoga would likely take advantage of new housing opportunities in the city, which would not add to the city's population. Accordingly, it is likely that the implementation of the project would increase the population in Saratoga by fewer than 5,703 people.

Additionally, due to the project being proposed and implemented to meet the City's RHNA requirements as determined by HCD and ABAG for the 2023-2031 planning period, housing sites identified as part of the project were identified as consistent with HCD guidance which requires the locating of housing sites according to certain standards. Accordingly, housing sites identified by the project are located within existing urbanized parts of the city, in proximity to existing or planned infrastructure. Additionally, as described within the various subsections of *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, the project would accommodate residential growth and associated population growth in accordance with the City's policies for location, type, and intensity of residential development, as set forth in the Housing Element and Land Use Element. As such, the population growth anticipated by the project's potential development of the 87 housing sites, totaling a maximum of 1,994 residential units, is considered planned—not unplanned—growth that is consistent with the City's General Plan. Accordingly,

¹ California Department of Finance, Demographic Research Unit, Report E-8: Historical Population and Housing Estimates for Cities, Counties, and the State 2000 to 2010, November 2012 and Report E-5, Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark, May 2022.

² Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050: Forecasting and Modeling Report, October.

impacts to unplanned population growth are determined to be less than significant as demonstrated in *Section IV.L, Population and Housing*.

B. SIGNIFICANT IRREVERSIBLE CHANGES

An EIR must identify any significant irreversible environmental changes that could result from adoption and development under a project. These may include current or future uses of non-renewable resources and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.³ The CEQA Guidelines identify three distinct categories of significant irreversible changes: (1) changes in land use that would commit future generations; (2) irreversible changes from environmental actions; and (3) consumption of non-renewable resources.

1. Changes in Land Use Which Would Commit Future Generations

The project includes updates to long-range planning documents of the City of Saratoga including the City's Housing, Safety, Land Use, Safety, Open Space and Conservation, and Circulation and Scenic Highway Elements. These planning documents are being updated to account for present and future housing needs of the city through the year 2031, as required by HCD and ABAG. Accordingly, the project would update the City's General Plan, in accordance with State Law.

2. Irreversible Changes from Environmental Accidents

As part of these updates, the City is planning for the accommodation of up to 1,994 residential units between the years 2023-2031 on a total of 87 housing sites as described within *Chapter III, Project Description*. Housing sites are anticipated to be developed over the course of the eight-year planning period. Any future development of housing sites may include the temporary use of some hazardous agents, such as paints, oils, solvents, and cleansers, as well as temporary storage of these materials and fuel on site. However, the amounts of chemical agents typically used during the construction of housing units is limited, and any construction activities will be carried out in accordance with the California Building Code. Accordingly, the impacts the project is anticipated to have on irreversible damages due to environmental accidents is less than significant.

3. Consumption of Non-Renewable Resources

These housing sites are primarily located within existing urbanized areas of the city, away from nonrenewable resources such as biological habitats, agricultural lands, mineral deposits, and

³ CEQA Guidelines Section 15126.2(c).

other cultural resources classified as non-renewable resources. Any future development of individual housing sites identified by the project would include limited consumption of slow to renew or non-renewable resources as part of the construction phase; this may include building materials such as metals, lumber, asphalt, and fuel used to operate machinery and transport persons and other materials. Construction of individual housing sites, and the related use of nonrenewable resources, will comply with Title 24, Part 6 of the California Code of Regulations (CCR) which regulates energy efficiency standards for residential and nonresidential buildings, new construction, remodels, and additions. Accordingly, while future development of housing sites facilitated by the project would result in consumption of non-renewable resources, they would be developed consistent with regulations included within this EIR which are intended to require green building practices which reduce the consumption of non-renewable resources as part of construction and development. Additionally, it is important to note that development of individual housing sites is not anticipated to occur concurrently but rather over the course of the eight-year planning period (2023-2031). Accordingly, the project would result in the consumption of non-renewable resources on a relatively small scale in a regional context and therefore the anticipated impacts on the consumption of nonrenewable resources is less than significant.

C. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

Section 15126.2(b) of CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided even with implementation of feasible mitigation measures. Based on the environmental analysis in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*, the project would only result in two significant and unavoidable impact related to agriculture resources and transportation:

Impact LU-1: Implementation of the proposed project would allow new development in areas of the planning area that are designated Unique Farmland, under Williamson Act contract, or include agricultural zoning.

Impact TRANS-1: Implementation of the project would generate vehicle miles traveled (VMT) per resident that is greater than 85 percent of the countywide average VMT per resident.

D. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited, but cumulatively considerable. Per Section 15065(a)(3) of the CEQA Guidelines, “cumulatively considerable” means that the incremental effects of an

individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of likely future projects. Cumulative effects of the project are discussed under the respective topic sections in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures*.

E. EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental topics analyzed in *Chapter IV, Environmental Setting, Impacts, and Mitigation Measures* represent the topics that generated the greatest potential controversy and expectation of adverse impacts among City staff and members of the public. The following topics were excluded from discussion in this EIR because it was determined during the scoping phase of the project that impacts would be less than significant:

- Energy
- Mineral Resources

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APPENDIX A
NOTICE OF PREPARATION AND COMMENTS



SARATOGA

California

Community Development Department

13777 Fruitvale Avenue

Saratoga, CA 95070

408.868.1222

NOTICE OF PREPARATION

of a Draft Program Environmental Impact Report (EIR) for the
City of Saratoga 6th Cycle Housing Element Update,
Safety Element Update, 2040 General Plan Update and Associated Rezonings

DATE: February 28, 2022

TO: State Clearinghouse, Responsible Agencies, Trustee Agencies, Federal Agencies, and other Interested Agencies, Parties, and Organizations

SUBJECT: Notice of Preparation (NOP) of a Draft Program Environmental Impact Report (EIR) for the City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezonings and Notice of Public Scoping Meeting

NOP COMMENT PERIOD: February 28, 2022 to March 30, 2022 by 5:00 p.m.

PUBLIC SCOPING MEETING: March 21, 2022, at 6:00 p.m. Zoom Webinar

LEAD AGENCY: City of Saratoga Community Development Department
Debbie Pedro, AICP, Community Development Director
13777 Fruitvale Avenue
Saratoga, CA 95070
Phone: (408) 868-1231
Email: dpedro@saratoga.ca.us

NOTICE IS HEREBY GIVEN THAT The City of Saratoga (lead agency) will prepare a Draft Program Environmental Impact Report (EIR) for the proposed City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezonings (collectively referred to as the “proposed project”). The Program EIR will address the environmental impacts associated with the adoption and implementation of the proposed project. This Notice of Preparation (NOP) is being distributed to applicable responsible agencies, trustee agencies, and interested parties as required by the California Environmental Quality Act (CEQA). Interested agencies are requested to comment on the scope and content of the descriptions of the significant environmental issues, mitigation measures (if needed), and reasonable alternatives to be explored in the Program EIR. Information regarding the project description, project location, public outreach process and topics to be addressed in the Program EIR is provided below.

30-DAY NOP COMMENT PERIOD: The City of Saratoga solicits comments regarding the scope and content of the Program EIR from all interested parties, responsible agencies, agencies with jurisdiction by law, trustee agencies, and involved agencies. In accordance with the time limits established by CEQA, the NOP public review period will begin on February 28, 2022 and end on March 30, 2022. If no response or request for additional time is received by any Responsible or Trustee Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency or Trustee Agency has no response

Notice of Preparation
City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and
Associated Rezonings EIR

to make [CEQA Guidelines Section 15082(b)(2)]. Please send your written/typed comments (including name, affiliation, telephone number, and contact information) by 5:00 p.m. on March 30, 2022 to:

City of Saratoga Community Development Department
Debbie Pedro, AICP, Community Development Director
13777 Fruitvale Avenue
Saratoga, CA 95070
Phone: (408) 868-1231
Email: dpedro@saratoga.ca.us

PUBLIC SCOPING MEETING: The City will hold a Scoping Meeting to: 1) inform the public and interested agencies about the proposed project; and 2) solicit public comment on the scope of the environmental issues to be addressed in the Program EIR as well as the range of practicable alternatives to be evaluated. The date, time and place of the meeting is as follows:

Monday, March 21, 2022 at 6:00 p.m.

Use the following information to join the meeting using Zoom or by calling in:

Webinar URL: <https://us02web.zoom.us/j/87442325794>

Call In: 1.408.638.0968 or 1.669.900.6833

Webinar ID: 874 4232 5794

PROJECT-RELATED DOCUMENTS: Saratoga's existing General Plan documents (including the 2015-2023 Housing Element and 2013 Safety Element) and materials for the 2040 General Plan Update are available at www.saratoga.ca.us/gp. More information specific to the Housing Element Update process is available at www.saratoga.ca.us/housing.

PROJECT LOCATION: The City of Saratoga is located in northwestern Santa Clara County. The City is bordered by San Jose to the north and northwest, Campbell to the east, Monte Sereno to the southeast, and the Fremont Older Open Space Preserve and unincorporated county lands to the west. The General Plan Planning Area is the geographic extent for the environmental analysis, composed of approximately 9,016 acres (approximately 7,201 acres within City limits and 1,815 acres within the City's Sphere of Influence).

California State Route 85 (SR-85) intersects the northeast corner of the City and connects Saratoga to the rest of the San Francisco Bay Area to the north and U.S. Route 101, a major north-south highway, to the east. In addition, State Route 9 (SR-9) intersects the southern portion of the city and provides connections to State/regional parks and Santa Cruz to the south.

The City Boundaries and regional location of Saratoga are shown in **Attachment 2**.

PROJECT BACKGROUND: The City of Saratoga's comprehensive General Plan establishes a consistent direction for future development and contains elements covering State-mandated topics. The Saratoga General Plan Elements are: Land Use, Circulation & Scenic Highways, Housing, Open Space & Conservation, Noise, and Safety. The City of Saratoga adopted its General Plan in 1983 and has updated one or two elements at a time based on State requirements. In accordance with State law, the new planning period, also known as the "6th Cycle", for the updated Housing Element will extend from January 31, 2023 to January 31, 2031. Revision of the Housing Element also triggers review and update of the Safety Element (SB 1035, 2018).

In addition to the General Plan, the City of Saratoga has adopted the Hillside Specific Plan in 1994, the Village Specific Plan in 1988, and Area Plans in 1988. These plans provide area-specific guidance for future development and work concurrently with the goals and policies of the General Plan. In 2016, the Saratoga City Council determined that the Village Specific Plan had served its useful life, and that future policy guiding

land use, development, and building modifications in the village should be incorporated into the General Plan.

KEY COMPONENTS OF HOUSING ELEMENT: Through the Housing Element update process, the City is required to demonstrate that it has the regulatory and land use policies to accommodate its assigned Regional Housing Needs Allocation (RHNA). Local governments are not required to build the housing. Rather, the actual development of housing is anticipated to be constructed by developers. However, the Housing Element is required to identify potential sites where housing can be accommodated to meet all the income levels of a jurisdiction's RHNA. Identification of potential sites and related site housing capacity does not guarantee that construction will occur on that site. If there are insufficient sites and capacity to meet the RHNA allocation, the Housing Element is required to identify a rezoning program to accommodate the required capacity. If the City does not identify capacity for its RHNA allocation, the City could be deemed out of compliance and risk losing important sources of funding currently provided by the State as well as facing legal challenges.

The Key Components of the housing element are:

1. **Housing Needs Assessment:** Examine demographic, employment, and housing trends and conditions and identify existing and projected housing needs of the community, with attention paid to special housing needs (e.g., large families, persons with disabilities).
2. **Evaluation of Past Performance:** Review the prior Housing Element to measure progress in implementing policies and programs.
3. **Housing Sites Inventory:** Identify locations of available sites for housing development or redevelopment to ensure there is enough land zoned for housing to meet the future need at all income levels.
4. **Affirmatively Furthering Fair Housing (AFFH):** Facilitate deliberate action to explicitly address, combat, and relieve disparities resulting from past patterns of segregation to foster more inclusive communities, in compliance with Assembly Bill 686 (2018).
5. **Community Engagement:** Implement a robust community engagement program, reaching out to all economic segments of the community plus traditionally underrepresented groups.
6. **Constraints Analysis:** Analyze and recommend remedies for existing and potential governmental and nongovernmental barriers to housing development.
7. **Policies and Programs:** Establish policies and programs to be carried out during the 2023-2031 planning period to fulfill the identified housing needs.

REGIONAL HOUSING NEEDS ALLOCATION (RHNA): In addition to including goals, policies, and implementation strategies regarding housing, housing elements must include a list of housing sites that can accommodate the amount of housing units assigned to the City by the Association of Bay Area Governments (ABAG). This assignment is referred to as a RHNA (see Table 1).

Along with the amount of RHNA units assigned to the City, the City needs to provide a buffer (extra housing sites) to ensure there is capacity to ensure an ongoing supply of sites for housing during the eight-year-cycle of the Housing Element. Without the buffer, the City could be obliged to identify new sites and amend the Housing Element prior to the end of the cycle if an identified site were developed with a non-housing project or developed at a density less than that anticipated in the Housing Element.

The need for a substantial buffer is even more important during this cycle because of new rules in the Housing Accountability Act's "no net loss" provisions. SB 166 (2017) requires that the land inventory and site identification programs in the Housing Element always include sufficient sites to accommodate the unmet RHNA. This means that if a site identified in the Element as having the potential for housing development to accommodate the lower-income portion of the RHNA is actually developed for a higher income level, the locality must either: 1) identify and rezone, if necessary, an adequate substitute site; or 2) demonstrate that the land inventory already contains an adequate substitute site. An adequate buffer will be critical to ensuring that the City remains compliant with the requirements. Table 1 below also includes the proposed number of housing units with a buffer.

Table 1 City of Saratoga RHNA and Proposed Housing Units Across Income Categories

INCOME LEVEL	RHNA	PROPOSED
Very-Low-Income (0-50 percent of AMI) *	454	504
Low-income (50-80 percent of AMI)	261	309
Moderate-income (80-120 percent of AMI)	278	317
Above moderate-income (120 percent or more of AMI)	719	777
TOTAL	1,712	1,907

*Area Median Income

PROPOSED 6TH CYCLE HOUSING ELEMENT UPDATE: The City will be adopting a new Housing Element to comply with all requirements of State law. This will include all the components noted above. As required by State law, the proposed housing sites inventory includes sufficient existing and new housing sites at appropriate densities to meet the City’s RHNA requirement plus a buffer. To determine where these potential housing sites will be and what densities will be required to satisfy legal requirements, the City has conducted several study sessions with the public to identify parcels in the City where housing sites could potentially be located. These parcels are spread throughout the City and are identified in Attachment 1 and shown in Attachment 2. The proposed project also includes changes to the General Plan Land Use Element and the City’s zoning code necessary to implement the Housing Element.

SAFETY ELEMENT: The goal of the Safety Element is to reduce the negative impacts caused by natural phenomena such as fires, floods, droughts, earthquakes, and landslides. This goal is achieved by identifying policies and programs that reduce the risks faced by residents. In recent years, State requirements have expanded the Safety Element’s scope to include climate change vulnerability and adaptation and greater attention to wildfire and evacuation routes. Jurisdictions are required to complete a vulnerability assessment, develop adaptation and resilience goals, policies, and objectives, and develop a set of feasible implementation measures addressing climate change adaptation and resiliency (SB 379, 2015). Jurisdictions must review and update these portions of the Safety Element upon each revision of the housing element or local hazard mitigation plan (LHMP), but not less than once every eight years. (SB 1035, 2018).

2040 GENERAL PLAN UPDATE: In addition to the 6th Cycle Housing Element and Safety Element, the City of Saratoga is updating the Land Use, Open Space & Conservation, and Circulation & Scenic Highways Elements to reflect current conditions, amend inconsistencies, and achieve compliance with current state laws and applicable regional policies (known collectively as the “2040 General Plan Update”). No changes are proposed to the Noise Element or to the currently adopted land uses except as necessary to implement the Housing Element.

As part of the update process, the recently adopted goals and policies for the Saratoga Village Specific Plan will be incorporated into the Land Use Element and the existing Village Plan (May 1988, modified April 2010) will be rescinded.

PROGRAM EIR ANALYSIS: The City of Saratoga, as the Lead Agency, will prepare a Program EIR for the proposed project. These actions are subject to CEQA review and the Program EIR will be prepared in accordance with CEQA, implementing the CEQA Guidelines, relevant case law, and City procedures. As policy documents, the proposed project provides guidance and sets standards for several areas of mandatory environmental review for later projects that would be undertaken by local government and the private sector, such as specific infrastructure or development projects.

The Program EIR will evaluate potential environmental impacts associated with adoption and implementation of the proposed project. The Program EIR will disclose potential impacts of the proposed

project, propose mitigation measures to avoid and/or reduce impacts deemed potentially significant, identify reasonable alternatives, and compare the environmental impacts of the alternatives to the proposed project's impacts. Pursuant to Section 15063(a) of the CEQA Guidelines, no Initial Study will be prepared. The Program EIR will evaluate the full range of environmental issues contemplated under CEQA and the CEQA Guidelines. At this time, it is anticipated that the following issues/technical sections will be addressed in the EIR:

- Aesthetics Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services, Recreation, and Utilities
- Transportation
- Tribal Cultural Resources
- Wildfire

The Program EIR will also discuss the cumulative impacts of the proposed project in combination with other closely related past, present, and reasonably foreseeable probable future projects in the vicinity.

The Program EIR will describe and evaluate the comparative merits of a reasonable range of alternatives to the proposed project that could reasonably accomplish most of the basic project objectives and could avoid or substantially lessen one or more of the significant impacts. The Program EIR will also analyze the "No Project Alternative" and will identify the environmentally superior alternative. The Program EIR will briefly describe and explain any alternatives that were eliminated from detailed consideration. The alternatives to be analyzed will be developed during the environmental review process and will consider input received during the public scoping process.

THE PURPOSE OF THIS NOTICE: In accordance with the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15082), the City has prepared this NOP to inform agencies and interested parties that an EIR will be prepared for the proposed project. The purpose of an NOP is to provide sufficient information about the proposed project to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (State CEQA Guidelines 14 CCR Section 15082[b]).

ENVIRONMENTAL REVIEW PROCESS: Following completion of the 30-day NOP public review period, the City will incorporate relevant information into the Draft Program EIR, including results of public scoping and technical studies. Subsequently, the Draft Program EIR will be circulated for public review and comment for a 45-day public review period. The City requests that any potential Responsible or Trustee Agency responding to this notice do so in a manner consistent with CEQA Guidelines Section 15082(b). All parties that have submitted their names and email or mailing addresses will be notified throughout the CEQA review process.

A copy of the NOP (in full color) can be found on the City website at www.saratoga.ca.us/gp_or_housing, and it is available on file at the City of Saratoga Planning Department (13777 Fruitvale Avenue, Saratoga, CA 95070).

Attachments:

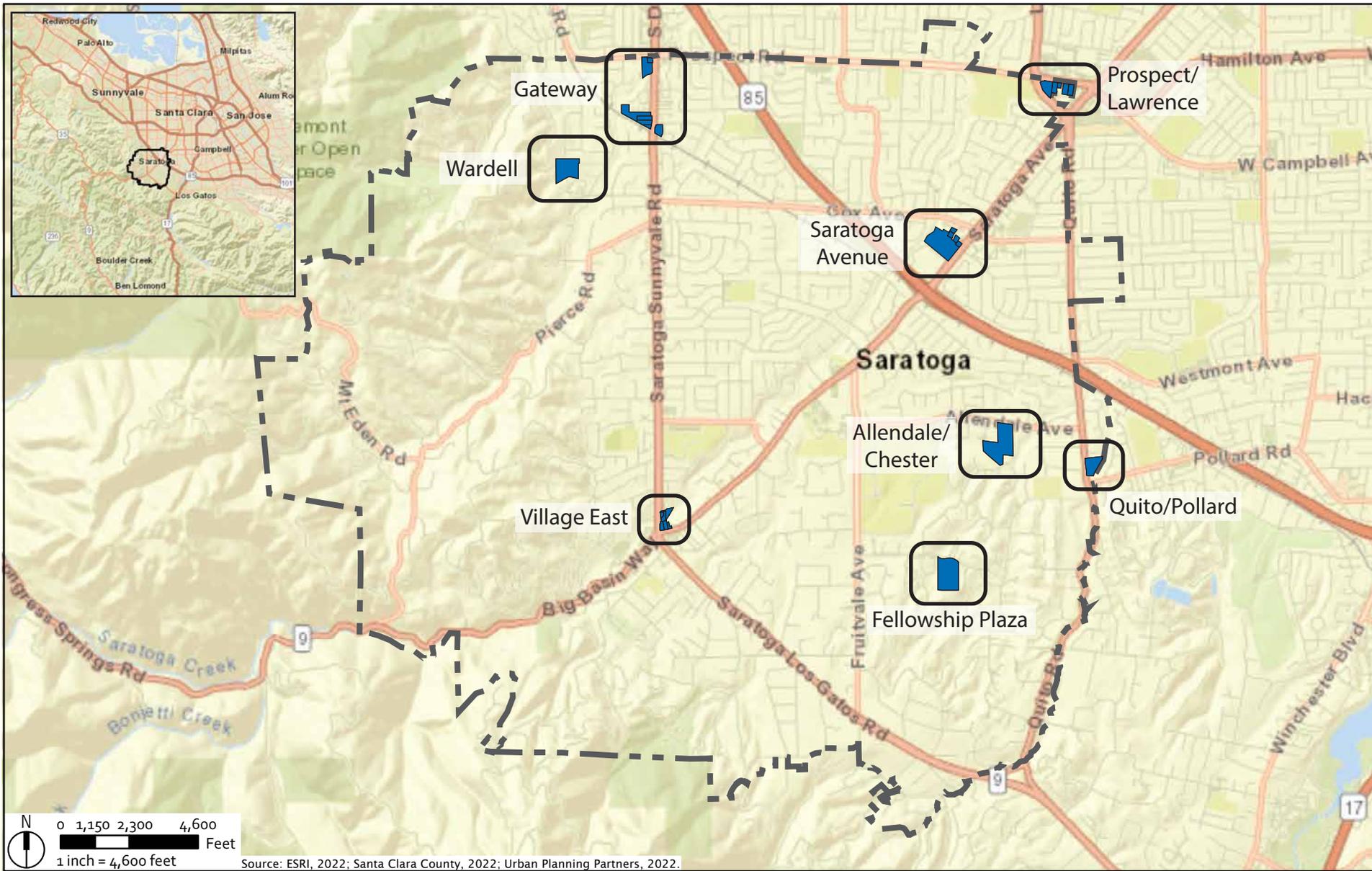
Attachment 1, Proposed Housing Opportunity Sites

Attachment 2, Diagram Showing Location of Proposed Housing Opportunity Sites

Attachment 1

Proposed Housing Opportunity Sites

Areas	Assessor Parcel		Parcel Size (Gross Acres)	Lot Square Footage	Existing Use/Vacancy	Units Planned by Total	
	Number	Site Address/Intersection				City	Units
Saratoga Ave.	38906017	13025 Saratoga Ave.	9.76	426,024	Vacant		293
Saratoga Ave.	38906007	12961 Village Dr.	0.45	19,643	Office Building		14
Saratoga Ave.	38906006	12943 Village Dr.	0.38	16,587	Vacant		11
Saratoga Ave.	38906008	Village Dr.	0.49	21,389	Vacant		15
Saratoga Ave.	38906016	12989 Saratoga Ave.	0.37	16,151	Vacant		11
Gateway S.	36612066	12361 Saratoga Sunnyvale Rd.	0.32	13,968	Commercial Building		10
Gateway S.	36612065	12341 Saratoga Sunnyvale Rd.	0.94	41,031	Funeral Home		28
Gateway S.	36612054	12333 Saratoga Sunnyvale Rd.	1.01	44,087	Commercial Building		30
Gateway S.	36612072	12299 Saratoga Sunnyvale Rd.	3.08	134,442	Storage		92
Gateway S.	38653031	12312 Saratoga Sunnyvale Rd.	1.23	53,690	Office Building		37
Gateway N.	36622022	12029 Saratoga Sunnyvale Rd.	2.54	110,871	Commercial Center		38
Gateway N.	36622023	12015 Saratoga Sunnyvale Rd.	0.38	16,587	Gas Station		6
Village East	39727028	14320 Saratoga Sunnyvale	0.46	20,079	Commercial Center		14
Village East	39727029	20440 Arbeleche Ln.	0.83	36,230	Multi-Family		25
Village East	39727001	Arbeleche Ln. (city parcel)	0.28	12,222	Parking Lot (City)		8
Village East	39731020	14395 Saratoga Ave	0.49	21,389	Office Building		15
Village East	39731011	14375 Saratoga Ave.	0.56	24,444	Office Building		17
Village East	39731008	14363 Saratoga Ave.	0.28	12,222	Office Building		8
Prospect/Lawrence	38610043	18562 Prospect Rd.	2.14	93,411	Commercial Center		171
Prospect/Lawrence	38610004	18560 Prospect Rd.	0.87	37,976	Carwash		70
Prospect/Lawrence	38610055	18522 Prospect Rd.	0.3	13,095	Auto Repair		24
Prospect/Lawrence	38610006	18506 Prospect Rd.	0.94	41,031	Auto Parts		75
Prospect/Lawrence	38610007	18480 Prospect Rd.	0.87	37,976	Commercial Building		70
Fellowship Plaza	39712016	14500 Fruitvale Ave.	10.47	457,016	Senior Housing		80
Wardell	36614041	20851 Wardell Road	7.35	320,828	Vacant		10
Allendale/Chester	39701071	14001 Chester Ave.	12.13	529,475	Agriculture		24
Quito/Pollard	40322016	14076 Quito Road	3.56	155,394	Vacant		10
							1,206
							1,206



City of Saratoga Boundary

Anthony R. Fisher, Ph.D.
19420 Vineyard Lane
Saratoga, California 95070

March 30, 2022

City of Saratoga Community Development Department
Debbie Pedro, AICP, Community Development Director
13777 Fruitvale Ave.
Saratoga, CA 95070

Re: City of Saratoga 6th Cycle Housing Element Update, Safety Element Update,
2040 General Plan Update, and Associated Rezonings EIR to make [CEQA
Guidelines Section 15082(b)(2)]

Dear Ms. Pedro:

As you know, in the Saratoga Avenue site, adjacent to the Vineyards of Saratoga where I live, 344 housing units with heights up to 3 stories are being proposed in the Regional Housing Needs Allocation (RHNA) update for Saratoga. This specific proposal is not **compatible** and in line with the provisions of the City's existing Mission & Values Statement for the surrounding neighborhood, like the Vineyards of Saratoga.

In order to achieve a **good compatible** and **reasonably balanced** plan in the proposed Saratoga Avenue site, the associated EIR should study and recommend a lower housing target. Specifically, such study should recommend a restriction to a housing building height to 2 stories or less. This would restrict the maximum number of housing units below the recent proposal to about 230. Also, since the proposed site is close to the connections to Highway 85, the EIR should confirm that any increase in such housing, especially above a 230 housing limit would exacerbate traffic on the already congested Saratoga Avenue.

Sincerely

Anthony R. Fisher, Ph.D.

RECEIVED
MAR 30 2022
CITY OF SARATOGA

California Department of Transportation

DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D | OAKLAND, CA 94623-0660
www.dot.ca.gov



March 25, 2022

SCH #: 2022020707
GTS #: 04-SCL-2022-01029
GTS ID: 25723
Co/Rt/Pm: SCL/9/7.4

Debbie Pedro, Community Development Director
City of Saratoga
13777 Fruitvale Avenue
Saratoga, CA 95070

Re: City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update and Associated Rezonings Notice of Preparation (NOP) for Draft Environmental Impact Report (DEIR)

Dear Debbie Pedro:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for this project. We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the February 2022 NOP.

Project Understanding

The Project includes the City of Saratoga's 6th Cycle Housing Element Update for the planning period extending from January 31, 2023 to January 31, 2031. This update will be accompanied by updates to the City's Safety Element pursuant to SB 1035 (2018), updates to the City's General Plan, and associated rezonings required to accommodate the 6th Cycle Housing Element Update.

Travel Demand Analysis

With the enactment of Senate Bill (SB) 743, Caltrans is focused on maximizing efficient development patterns, innovative travel demand reduction strategies, and multimodal improvements. For more information on how Caltrans assesses Transportation Impact Studies, please review Caltrans' Transportation Impact Study Guide ([link](#)). Please note that current and future land use projects proposed near and adjacent to the State Transportation Network (STN) shall be assessed, in part, through the TISG.

Debbie Pedro, Community Development Director
March 25, 2022
Page 2

Additionally, Caltrans requests that the City of Saratoga General Plan Update is consistent with California Government Code Section 65088-65089.10 Congestion Management.

As well, the City is requested to gain a determination of conformity from the Santa Clara Valley Transportation Authority to determine that the City of Saratoga General Plan Update is consistent with and conforms to the Regional Transportation Plan Consistency Requirements of the County's Congestion Management Plan (CMP).

Transportation Impact Fees

We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT. Caltrans welcomes the opportunity to work with the City and local partners to secure funding for needed mitigation. Traffic mitigation or cooperative agreements are examples of such measures.

Lead Agency

As the Lead Agency, the City of Saratoga is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Equitable Access

If any Caltrans facilities are impacted by the project, those facilities must meet American Disabilities Act (ADA) Standards after project completion. As well, the project must maintain bicycle and pedestrian access during construction. These access considerations support Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D4@dot.ca.gov.

Sincerely,



MARK LEONG
District Branch Chief
Local Development Review

c: State Clearinghouse

From: Cheriell Jensen <cherieljensen@mac.com>
Sent: Wednesday, March 30, 2022 3:58 PM
To: Debbie Pedro <dpedro@saratoga.ca.us>; Tina Walia <tina4saratoga@gmail.com>; City Hall <cityhall@saratoga.ca.us>
Subject: Comments on the EIR Preparation for the Saratoga Housing Element, Safety Element and General Plan

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Cheriell Jensen
13737 Quito RD, Saratoga, CA

March 29, 2022

Mayor, Saratoga City Council, Planning Commission
Debbie Pedro, dpedro@saratoga.ca.us

RE: Alternatives assessment to General Plan, Housing Element and Safety Element Environmental Impact Report Preparation

Dear City Council, Planning Commission and City Planning Staff

Suggestions follow concerning the approach to alternatives to achieving the RHNA numbers given in light of SB9.

A First Alternative. No Project.

SB9 has taken housing planning out of our hands. It has provided all the zoning for housing RHNA requires.

A Second Alternative Duplex Zoning:

Saratoga could do a citywide redesignation and rezoning of most current Single Family Residential to a Duplex designation and, where appropriate, also add a "Built Out for Safety" designation.

This almost doubles the dwelling units permissible citywide, way more than spot zoning a few high density complexes (except where there are currently ADUs, in which case these already-duplexed lots would be determined "built out" within the new designation). This duplex zoning removes Saratoga from the scope of SB9 authority. The actual permissible lot and house sizes and permissible ownership forms would have to be worked out to assure some or most of this added housing was accessible to moderate and low income renters. Until the low income requirements were met, perhaps the first duplex units built would be rent controlled up to the RHNA low income numbers.

A new designation "Built-Out for Safety" for the Mapped Wildfire interface, mapped landslide and landslide potential, fault zones, inaccessible lands and areas subject to erosion or flooding could limit additional units in those areas of Saratoga so those areas would be subtracted from the RHNA yield. Never-the-less the state would have a difficult time arguing Saratoga would not meet the RHNA numbers,

Third Alternative: Show the State SB9 (2021) is more likely to reach the RHNA numbers than the spot high density zoning, and can provide for Moderate and Low income units.

SB9 was adopted **after** cities were given their RHNA astronomical numbers. This caused a well-more-than-double available land and infrastructure burden on cities trying to comply with changing uncoordinated State requirements. Did the state intend to double burden cities? Saratoga should now calculate the yield of SB9 as built-out, and could also separately make assumptions of rate of creation of units by the next Housing Element Benchmarks. These totals will add to a sum much higher than the RHNA Guidelines. Studies show that after these dense multi story apartments are built for low income people after a lengthy trial they are torn down. Chicago has recently given up on this form of low income housing. Many years ago Pruitt-Igoe, a dense multi story housing complex, was destroyed after its tenants showed that the high density housing for low income tenants unlivable.

Fourth Alternative: Designate all Saratoga A Historical District

Saratoga has a unique historical character with land provided for a mature tree canopy and land for greenery winning awards for this character. Whether or not such a designation is decided, the city should look into becoming a Historical District.

Fifth Alternative: Tax Long Vacant Houses and Apartments

Achieve some the RHNA Numbers with the current housing stock by taxing long vacant housing units thus making more existing housing available and likely affordable.

Additional activities under review must be part of the EIR Assessment

The City of San Jose potential Costco site and El Paseo site will have major impact on Saratoga and must be assessed together with SB9 and RHNA totals. The Los Gatos North 40 has already caused significant traffic impact just from it's construction and should be another factor in an accurate environmental assessment.

For all the above Factors and Alternatives together, the EIR must assess:

-the availability and dependability of additional necessary water sources and added delivery systems together with digging up the streets. The current water Saratoga uses is from the aquifer under our feet which will be further constrained by new mostly hard surface construction. Many other cities in the County have Hetch Hetchy water, a more reliable source and some have local reservoirs. Saratoga does not.

-the amount of additional capacity and costs required for sewage transport and processing. For this we are in competition with San Jose for use of their facility. San Jose could limit our access.

-local and regional roads, highways, sidewalks, bicycle paths, public transportation, where and how they are to be impacted, how and where they are to be improved, with what space and with what funding, since we are already sales-taxed to the state legal limit?

-the degree of impact on people's health and safety due to the added traffic and added congestion on local roads, regional roads and highways,

-the impact on people's health due to proximate loss of open land, vegetation and trees (See below article from a Mega-study of these factors documenting significantly lower life spans in proportion to long distances from green space),

- the projected additional losses of peoples time due to traffic congestion, and how delay impacts comfort and time for creativity and happiness. (Include new impacts from added school traffic.);
- the added noise due to added traffic and noise impact on health (Areas bordering Highway 85 for example are currently well out-of-compliance with The Noise Element Standards);
- the added ozone, sulfuric oxides, nitrogen oxides, particulates from combustion, tires and brakes, and hydrocarbons due to the added traffic and congestion, these poisons accompanied with loss of open land, trees and other vegetation which cleans the air,
- unequal serious impact on local schools, over loading some schools, while others are currently losing students but not impacted,
- where buildings are tall, the loss for many of the ability to have workable solar systems. The loss of space for windmills. What these constraints mean for climate actions.
- the amount and type of waste caused by demolishing existing in-use structures, loss of landfill space, loss of perfectly good materials that must be replaced. The loss of functioning groundwater recharge, trees and other vegetation that converts CO2. What do these losses mean for the climate and local water supply?
- how does the State forcing high-rise dwelling units, and the City in carrying out the mandate prevent the result of Pruitt-Igoe development failure?

<https://www.theguardian.com/cities/2015/apr/22/pruitt-igoe-high-rise-urban-america-history-cities>

Search: "United States Census Saratoga CA housing vacancy rate"

"Among 95070 residents, there is a homeowner vacancy rate of 0.0% and a rental vacancy rate of 2.7% from a total of 11,427 units." Cities that have applied a vacancy tax have filled approximately half the formerly vacant units following application of the vacancy tax. (San Francisco Chronicle report, Insight, Sunday, March 20, 2022) In the case of Saratoga this could result in some units of the RHNA number that may not have to be constructed. If the vacant ADUs were also taxed, this could result in more dwelling units that would not have to be constructed. This would likely make rental rates overall more affordable.

The Safety Element of the General Plan should incorporate the Cotton landslide potential maps, the FEMA flooding maps, the State fire risk maps, the aquifer maps, the most recent Alquist-Priolo Fault Zone maps, Measures A and G among the resources.

Yours truly,

Cheriel Jensen
 13737 Quito RD, Saratoga 95070
cherieljensen@mac.com
 408 930-0463

<https://www.goodnewsnetwork.org/living-near-a-leafy-green-park-cut-the-risk-of-a-stroke-for-3-5-million-people/>

Living Near a Leafy Green Park Cuts the Risk of a Stroke for 3.5 Million People

Good News Network March 26, 2022-



Barcelona, Spain – Carles Rabada

Living near a leafy green area cuts your risk of a stroke, scientists have found.

Their research shows that people who live less than 328 yards from a green space (300 meters) are at 16 percent lower risk from a stroke.

"People who are surrounded by greater levels of greenery at their place of residence are protected against the onset of stroke," said study co-author Dr Carla Avellaneda.

The findings indicate there is a clear relationship between levels of pollutants in the atmosphere and the risk of having a stroke.

For every ten micrograms per cubic meter of nitrogen dioxide in the air, the risk increases by 4%—and every extra cubic microgram of soot in the air raises the risk by 5%. Both of these are linked to car traffic.

These risks are across the board—unaffected by your age, smoking habits, or socioeconomic factors.

In contrast, having an abundance of green spaces near your home cuts your risk from a stroke by up to 16%.

For the study, the team analyzed the exposure of 3.5 million people in Catalonia, Spain, to the atmospheric pollutants. The collaboration—led by the Hospital del Mar Medical Research Institute and the local governing Catalan Health Quality and Assessment Agency—used geographic referencing and designing models to measure exposure to the nitrogen dioxide and soot, using population data.

Everyone they looked at was an adult who had not suffered a stroke before the study began.

The researchers say that, in light of their findings [published in the journal *Environment International*](#), recommendations about the levels of nitrogen oxide and fine particulate matter in the atmosphere deemed 'safe' by the European Union should be tightened.

Living near lots of leafy land is believed to help people exercise, reduce stress, and help people socialize with friends.

RELATED: [Hedgerows Are 2,000 Times More Valuable For Ecosystems Than We Could Imagine](#)

"Despite compliance with the levels set by the European Union, we are faced with the paradox that there is still a health risk, such as the one we identified in this study, where there is a direct relationship between exposure to pollutants in our environment and the risk of suffering a stroke," said the study's lead author Dr Rosa Maria Vivanco.

Boston researchers have found that trees and soils on the outermost edges of urban wooded areas and city parks [may also play a greater role in](#) fighting climate change than previously imagined, so cities of all sizes should continue planting more trees.

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-----Original Message-----

From: Deborah Matheson <demathe@sbcglobal.net>

Sent: Wednesday, March 23, 2022 8:20 PM

To: Debbie Pedro <dpedro@saratoga.ca.us>

Subject: Environmental Impact Report for Housing Element Plan

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I live in The Vineyards of Saratoga which has 160 households. There are already traffic problems on Saratoga Avenue in front of the complex as people approach the entrances to Highway 85. I suggest the Environmental Impact Report include traffic counting surveys on Saratoga Avenue. I agree with the criticism that most of the housing development plan puts the development in what they are now calling "North Saratoga." One of the proposals calls for over 300 units just north of The Vineyards of Saratoga complex. That will triple the amount of people needing to get onto Saratoga Avenue in that area. A traffic survey will provide information on the current condition and can be taken into consideration in the Environmental Impact Report on the housing plans under consideration.

Sincerely,

Deborah Matheson
19306 Vineyard Lane
Saratoga, CA 95070

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From: DZ Anderson <dzanderson@yahoo.com>

Sent: Monday, March 28, 2022 2:57 PM

To: Debbie Pedro <dpedro@saratoga.ca.us>

Subject: Comment Regarding Scope and Content of the Housing Element EIR Regarding the ALLENDALE/CHESTER PROPERTY

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To: Debbie Pedro (Community Development Director)

Cc: Saratoga City Council

Subject: Comment Regarding Scope and Content of the Housing Element EIR Regarding the ALLENDALE/CHESTER PROPERTY

Date: March 28, 2022

Dear Ms Pedro,

This is a request to include the following items in the scope of work for the upcoming EIR being done for the City of Saratoga 6th Cycle Housing Element Update regarding the ALLENDALE/CHESTER PROPERTY:

- The EIR should include the impacts of 96 duplex-style housing units on the property. (Even though the city has only reported 24 single family homes in its Housing Element Update, the reality is, the current owner/developer will probably maximize development of this property to the maximum allowed [96 duplex-style housing units] under SB9.)
- Traffic and pedestrian/bicycle safety impact:
 - Especially during school year at start and stop times of nearby Marshall Lane Elementary School, Rolling Hills Middle School, Redwood Middle School, Westmont High School, and West Valley

College.

- Impact along entirety of Chester Avenue.
- Impact along entirety of Allendale Avenue, from Fruitvale Avenue to Quito Road. (especially corners of Allendale/Quito, Allendale/Chester, and Allendale/Fruitvale)
- Ingress/egress of property onto narrow Allendale and Chester Avenues.
- Riparian impact on Vasona Creek that makes up the southwest border of the property and Sobey Creek which is less than 100 feet away from its southeast border.
- Flora impact. (Property currently has mature trees and native flora that will be removed/destroyed if built upon.)
- Fauna impact. (Property currently houses and/or is a throughfare for native, [endangered/impacted?] animal species such as coyotes, deer, blue herons, native frogs, etc.)
- Native American artifact impact. (History of Native American artifacts found on site)
- Underground water impact. (Suspected underground aquifer under property.)
- Mountain view impact on residents of homes on north boundary on Allendale Avenue and east boundary on Chester Avenue. (especially with 96 duplex-style TWO STORY housing units built)
- School enrollment impact on already overburdened Campbell Union High School District.

Sincerely,

David Anderson

Saratoga Resident

18588 Perego Way

(408) 871-1789

dzanderson@yahoo.com

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From: DZ Anderson <dzanderson@yahoo.com>

Sent: Monday, March 28, 2022 2:39 PM

To: Debbie Pedro <dpedro@saratoga.ca.us>

Subject: Comment Regarding Scope and Content of the Housing Element EIR Regarding the QUITO/POLLARD PROPERTY

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To: Debbie Pedro (Community Development Director)

Cc: Saratoga City Council

Subject: Comment Regarding Scope and Content of the Housing Element EIR Regarding the QUITO/POLLARD PROPERTY

Date: March 28, 2022

Dear Ms Pedro,

This is a request to include the following items in the scope of work for the upcoming EIR being done for the City of Saratoga 6th Cycle Housing Element Update regarding the QUITO/POLLARD PROPERTY:

- The EIR should include the impacts of 56 duplex-style housing units on the property. (Even though the city has only reported 10 single family homes in its Housing Element Update, the reality is, per the current owner/developer publicly stated interest, the current owner/developer WILL maximize development of this property to the maximum allowed [56 duplex-style housing units] under SB9.)
- Traffic and pedestrian/bicycle safety impact:
 - Especially during school year at start and stop times of nearby Marshall Lane Elementary School, Rolling Hills Middle School, and Westmont High School.

- Impact along entirety of Quito Road, from Saratoga Avenue to Saratoga-Sunnyvale Road.
- Impact along entirety of Pollard Road, from Quito Road to Burrows Road.
- Ingress/egress of property onto narrow Quito Road. (sole road access; NO access to/from Pollard Road)
- Riparian impact on San Tomas Aquinas Creek that makes up the entire east border of the property.
- Steep slopes (2) impact to building feasibility, water run-off, soil erosion, etc. (One slope runs north/south mid-property across whole property; another slope runs west/east along entire eastern border of property down to creek.)
- Flora impact. (Property currently has many mature trees and native flora that will be removed/destroyed if built upon.)
- Fauna impact. (Property currently houses and/or is a throughfare for native, [endangered/impacted?] animal species such as coyotes, deer, blue herons, native frogs, etc.)
- Native American artifact impact. (History of Native American artifacts found on site)
- Underground water impact. (Suspected underground aquifer under property.)
- Contaminated soil impact. (History of tanning factory on/near property)
- View / quality of life impact on residents on much lower graded adjacent homes on east boundary on Hyde Drive. (especially with 56 duplex-style TWO STORY housing units built)
- Impact to adjacent Friendship Park. (Sight-lines/set-backs)
- School enrollment impact on already overburdened Campbell Union High School District.

Sincerely,

David Anderson

Saratoga Resident

18588 Perego Way

(408) 871-1789

dzanderson@yahoo.com

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From: [Han Wen](#)
To: [Debbie Pedro](#)
Subject: Housing Element EIR/NOP
Date: Monday, March 21, 2022 2:53:43 PM

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Hi,

For the EIR for the proposed site at the Lawrence/Prospect location, please include consideration for 1) the combined EIR of this housing site + the El Paseo de Saratoga Whole Foods mixed commercial residential proposal + the Costco proposed at the adjacent shipping square where the former OSH was located; and 2) the combined impact of this housing site + the El Pass de Saratoga proposal on the neighboring Prospect High school (can it support the increase in estimated student population?) Thank you.

-Han-

Get [Outlook for iOS](#)

From: [Han Wen](#)
To: [Debbie Pedro](#)
Subject: Housing Element EIR/NOP
Date: Monday, March 21, 2022 3:00:21 PM

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Sorry, i did not include my contact information in my previous email.

name: Han Wen
telephone number: 408-421-3762
affiliation: Saratoga resident

Thanks for considering adding these topics for consideration in the EIRs.

-Han-

Get [Outlook for iOS](#)

RECEIVED

MAR 23 2022

CITY OF SARATOGA

March 20, 2022

City of Saratoga Community Development Department
Ms. Debbie Pedro, AICP, Community Development Director
13777 Fruitvale Avenue
Saratoga, CA 95070

Ref: EIR scope of work for General Plan update with added housing element.

To Whom it may concern,

I wish to have the scope of the EIR expanded to include "new water sources" for the added housing proposed. The broad term of "Hydrology and water Quality" does not in and of itself address the need for additional water sources to supply the community at large.

The current water company continues to develop new water sources by "squeezing" the use of water by existing customers through higher rate increases and the use of "drought" restrictions. Which by them selves are fine for short term supply issues. However, you can not price restrict and reduce to zero.

The added 1700 plus or minus housing units will require 1700 new water meters, the EIR under the California Environmental Quality Act requires you to identify the source of the water for those meters. (See San Lorenzo Valley Water District restrictions for precedent).

The new Climate change bill advocated by Governor Newsom does not develop new water source as the bases for fighting Climate change.

This is the time for the City Council to demand additional water sources be provided by the state prior to approving additional meter hookups for the community at large.

Thank you for your time and consideration of this important topic.

Very Truly Yours,
Dennis McFarlane
18600 Rancho Las Cimas Way
Saratoga, CA 95070
408-354-6686
dlmcf@comcast.net



James W. Foley, P.E.
ENGINEERING AND CONSTRUCTION CONSULTANT
P. O. Box 2153
Saratoga, California 95070
(408) 777-9917
jim@jimfoley.com

March 30, 2022

City of Saratoga Community Development Department
Debbie Pedro, AICP, Community Development Director
13777 Fruitvale Avenue
Saratoga, CA 95070

Re: Saratoga Housing Element 2021 EIR Comments

Dear Ms. Pedro;

I am offering the following comments related to the Saratoga Housing Element 2021 EIR. To date the following items have not been adequately addressed during the planning process:

- **Hydrology and Water Quality**

The high densities of many of the opportunity sites will not allow for on-site retention for run-off. NPDES requirements and Best Management Practices (BMPs) have not been evaluated for the densities proposed as they relate to on-site rainwater retention and infiltration, and stormwater management requirements.

- **Land Use and Planning/Population and Housing**

RHNA/ABAG requirements state that **“sites identified to accommodate the lower income must be distributed throughout the community in a manner that affirmatively furthers fair housing.”** So far Saratoga has not met this requirement. There are many vacant, adequate “opportunity sites” south of the Union Pacific Railroad (UPRR) tracks that would more equitably accommodate new housing. Saratoga has concentrated 83% of the identified RHNA allocation opportunity sites north of UPRR which is discriminatory. Additionally, impacts to school districts have not been addressed. See attachment.

- **Utilities - Sanitary Sewer Capacity**

Although addressed during the public input sessions, there has been no indication of coordination with City of San Jose related to the massive development at El Paseo de Saratoga properties at Saratoga Avenue, Lawrence Expressway, Prospect Road, and

Campbell Avenue – 1,100 multi-family units and 165,000 square feet of commercial space. Sanitary sewer lines in west Santa Clara Valley were designed and constructed in the 1950s for very low-density developments. Is the downstream capacity throughout the collection system in San Jose adequate for the Saratoga Housing Element in addition to the El Paseo development? Has Saratoga coordinated with Cupertino Sanitary District, West Valley Sanitary District, and the City of San Jose to assure adequate capacity throughout the collection systems? See Attachment

- **Utilities – Potable Water Supply**

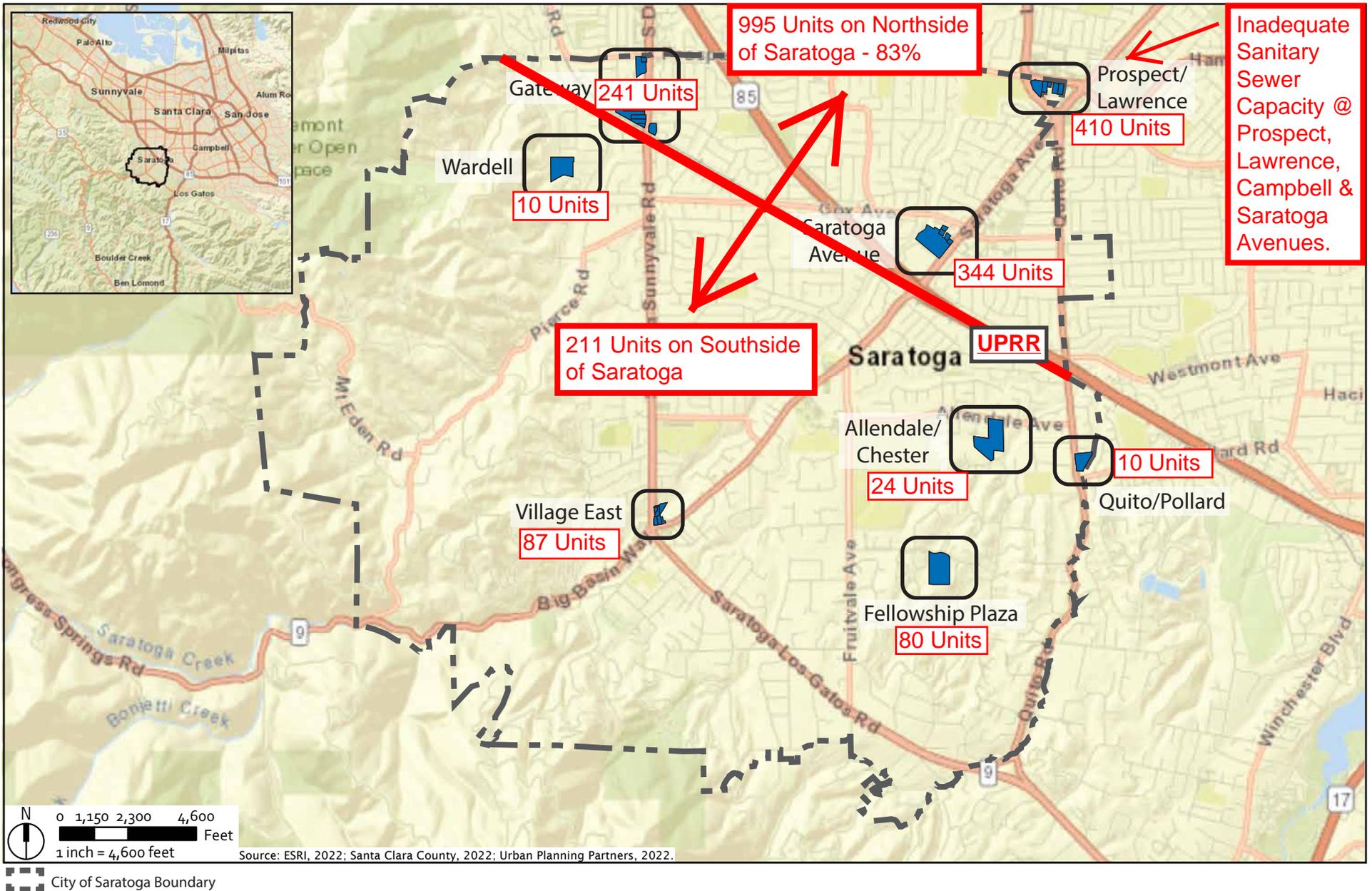
The issue of adequate potable water supply for the additional housing identified in the Housing Element 2021 has not been addressed. While the current water utility, San Jose Water Company, may have adequate capacity in their water mains/systems, will there be enough water to fill those mains. Santa Clara Valley Water District Board has recently voted to declare a “Water Shortage Emergency” as part of their Drought Emergency Response. <https://www.valleywater.org/drought> Will an additional ~1700 housing units required by RHNA/ABAG requirements negatively impact future potable water supplies for Saratoga residents?

If you have any questions or need more information, please call/email me.

Sincerely,

A handwritten signature in black ink, appearing to read "J. W. Foley". The signature is written in a cursive, flowing style.

James W. Foley, P.E.



Attachment 2
 Diagram Showing Location of Proposed Housing Opportunity Sites
 City of Saratoga Housing Element Notice of Preparation

From: Kathleen Lynch <kathleenlynch0709@gmail.com>

Sent: Wednesday, March 30, 2022 5:22 PM

To: Debbie Pedro <dpedro@saratoga.ca.us>

Subject: Housing Element Public Scoping Meeting

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My name is Kathleen Lynch; telephone number (408) 867-5679; address 20360 Orchard Road, Saratoga. I have resided at this address for 32 years.

I am writing to oppose the Housing Opportunity Site located at Fellowship Plaza for the following reasons: 1. the location of the proposed site is at the entrance to the Saratoga Village, a historic village. *2. At the proposed site is the City park , a registered landmark (#435) dedicated in 1950 and honoring local WWI dead and discussing the history of the Village that started in the early 1800's. *3 The streets around the site are narrow, 2 lanes and additional housing will impede Fire Department access. This is particularly true as this is a fire area *4 additional housing will create serious noise problems interfering with the current serenity of the village. *5 This is a historic area wherein most of the housing on Park Place, Oak Street, Orchard Road and La Paloma was established in the 1930's or

earlier. This is also true of the Federated Church and the Foothill Club. 5. Finally, new housing will destroy the historical ambiance of the existing neighborhoods and Village.

Thank you,
Kathleen Lynch

--

-Kathleen

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From: slkurasch@aol.com <slkurasch@aol.com>
Sent: Tuesday, March 29, 2022 4:02 PM
To: Debbie Pedro <dpedro@saratoga.ca.us>
Subject: Comments for EIR for the Housing Element Update

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To City staff and officials,

Concerning the upcoming EIR for the Housing Element and General Plan update, I echo many of the comments and concerns expressed in the "Housing Element Values Survey" about fulfilling the requirements of the state RHNA and the changes to the character of the city. I think the goals can be achieved, but would like to see an emphasis on quality of life issues for all residents, new and present, such as how view conflicts, and noise and traffic increases can be mitigated, and how much are reasonable. I would also like to see the costs for additional housing addressed, including street, water, sewer, fire safety, and similar costs and how they will all be paid and maintained on a finite, minimum services city budget, and how these added costs could impact the services that current residents receive.

I greatly appreciate the work the city has done to identify the "Housing Opportunity Sites" throughout the city in a sensitive and equitable manner. But this certainly will not be the last demand to expand housing that the state makes in towns throughout California. What then?? I would ask in the EIR under "practical alternatives" to evaluate the idea of adding a zoning overlay in most commercial areas to allow residential development as part of mixed-use proposals. That would expand the housing opportunities beyond a site by site basis, while allowing flexibility for current and future business property owners to diversify and add rental or sales income to their portfolio. Encouraging and supporting Saratoga businesses will in turn help support new housing and all its attendant costs.

Another "alternative" worth considering beyond public properties identified would be school and church properties, which may find the prospect of adding housing appealing for financial reasons, or to support their communities of teachers, parishioners, seniors, and others. The trend of universities opening their campuses to alumni, seniors and others is already an expanding trend in many communities.

Finally, no one can predict the impacts of SB 9 on all neighborhoods of the city, but some kind of projection should certainly be taken into account when analyzing fulfillment of the RHNA.

Thank you,

Lisa J. Kurasch
18665 Ravenwood Drive
Saratoga, CA (408) 674-1112

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From: Lynn Telford <lynntel70@gmail.com>
Sent: Monday, March 28, 2022 2:12 PM
To: Debbie Pedro <dpedro@saratoga.ca.us>
Subject: Housing Element EIR

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TO : Debbie Pedro, Community Development Director,
Saratoga CA

I know that Saratoga, along with all cities in CA , has to deal with a state law that they did not originate. Many people have made the same good & important issues, a number of them being practical: what do we/can we do if various negative consequences flow from the building & occupancy of all these new housing elements? It will arise everywhere, I don't see it being at all addressed anywhere, but the time will come & there may not be any avenues or resources available to "fix" potential negative consequences then. For instance: In 3/24/22 Mercury News there were 2 Letters to the Editor about problems coming about with this additional housing : water & affordability. I know Saratoga will not be alone, and there have been & will be other issues. I think a lot of the negative feelings in the community have to do with the apparent lack of planning downstream as to how

we all can deal with the *inevitable* problem situations. I have lived in Saratoga for decades & am sad to see what will be.

My main point ---finally----that I wanted to make is that there is seemingly no cooperation by adjacent cities involved. To be honest, I don't know how you make them cooperate. I wish there was more community activism to force reconsideration of what is negative & unworkable in this law. I have real estate friends who agree the law was so bad & impractical. And this does not guarantee *affordable* housing. A few weeks ago around 1:30-1:40 on a weekday afternoon, sunny dry day, it took me more than 15 minutes to drive from Prospect & Miller to

Prospect & Saratoga & get through that stoplight. What will happen to traffic movement when the following are built along that same stretch of road: a huge Costco at Prospect & Lawrence on one side, a 10 story very large residential building on the other side of & on Prospect, and the huge residential & commercial redevelopment at Prospect & Saratoga Ave.??

I know this involves more than Saratoga so cooperation is seemingly non-existent---this is a good part of what upsets people. It seems that we will be stuck with an area of housing & shopping, let alone getting anywhere, that will be inaccessible w/o taking inordinate amounts of time.

Well, thank you for listening, I have not heard that last point really being discussed as to what can be done in the future as needed. Or how Californians can get together to bring about more rational, beneficial, & workable modifications in the law

forcing this on cities.

~~~Lynn Telford

Prides Crossing

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---

**From:** MARILYN MANIES <marilynmanies@gmail.com>

**Sent:** Thursday, March 24, 2022 4:48 PM

**To:** Debbie Pedro <dpedro@saratoga.ca.us>

**Subject:** environmental impact report

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My name is Marilyn Manies and I am a resident of Saratoga Retirement Community (SRC). My concern with the addition of 80 new units at Fellowship Plaza is traffic, especially with the 52 units being proposed at SRC. Even now, prior to the addition of these 122 units, it is questionable how residents could safely evacuate their homes in the event of an emergency. Yes, there are gates onto San Marcos Rd. from both facilities, but they are padlocked and if an emergency happened over the weekend or on a holiday when staff is unavailable, who will be responsible for opening them? If fire trucks and/or ambulances tried to come in while residents were trying to go out, it could be gridlock and catastrophic as many people residing in these two facilities use walkers, canes and wheelchairs to get around.

Thank you for considering this problem and working to find a solution.

Sincerely,

Marilyn Manies

408-209-4190

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**From:** Mark Hirth <mark@hirthland.com>  
**Sent:** Sunday, March 27, 2022 9:22 AM  
**To:** Debbie Pedro <dpedro@saratoga.ca.us>  
**Subject:** Housing Element Public Scoping Meeting

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Hello Debbie,

I am generally supportive of the areas designated for future development in the Saratoga Housing Element update. However I do have one concern that I think should be studied in the EIR. That concern is the intersection of Saratoga Avenue and Cox. This intersection is already quite impacted during certain times of the day. Adding significant density in this area will only increase the impact to this intersection, as well as the stretch of Saratoga Avenue between Quito Road and Hwy 85, and on Cox Road between Saratoga Avenue and Saratoga-Sunnyvale Rd. The report should analyze ways that the capacity of this intersection can be increased, and how the improvements should be funded.

Thanks,  
Mark Hirth  
Saratoga resident  
14597 Big Basin Way  
Saratoga, CA 95070

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## NATIVE AMERICAN HERITAGE COMMISSION

March 1, 2022

Debbie Pedro, AICP  
City of Saratoga  
13777 Fruitvale Avenue  
Saratoga, CA 95070

CHAIRPERSON  
**Laura Miranda**  
Luiseño

VICE CHAIRPERSON  
**Reginald Pagaling**  
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California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

**Re: 2022020707, Program EIR for the City of Saratoga 6<sup>th</sup> Cycle Housing Element Update, Safety Element Update, and Associated Zoning Amendments Project, Santa Clara County**

Dear Ms. Pedro:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

## AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

- 1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:** Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

  - a. A brief description of the project.
  - b. The lead agency contact information.
  - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
  - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).
  
- 2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:** A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

  - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).
  
- 3. Mandatory Topics of Consultation If Requested by a Tribe:** The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

  - a. Alternatives to the project.
  - b. Recommended mitigation measures.
  - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).
  
- 4. Discretionary Topics of Consultation:** The following topics are discretionary topics of consultation:

  - a. Type of environmental review necessary.
  - b. Significance of the tribal cultural resources.
  - c. Significance of the project's impacts on tribal cultural resources.
  - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).
  
- 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process:** With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).
  
- 6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document:** If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

  - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
  - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
  - b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a.** Avoidance and preservation of the resources in place, including, but not limited to:
    - i.** Planning and construction to avoid the resources and protect the cultural and natural context.
    - ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
  - b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    - i.** Protecting the cultural character and integrity of the resource.
    - ii.** Protecting the traditional use of the resource.
    - iii.** Protecting the confidentiality of the resource.
  - c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
  - d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
  - e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
  - f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
  - b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
  - c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: [http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation\\_CalEPAPDF.pdf](http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf)

## SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: [https://www.opr.ca.gov/docs/09\\_14\\_05\\_Updated\\_Guidelines\\_922.pdf](https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf).

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
  - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

## NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center ([http://ohp.parks.ca.gov/?page\\_id=1068](http://ohp.parks.ca.gov/?page_id=1068)) for an archaeological records search. The records search will determine:
  - a. If part or all of the APE has been previously surveyed for cultural resources.
  - b. If any known cultural resources have already been recorded on or adjacent to the APE.
  - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
  - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.



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**From:** Ray froess <ray@froess.com>

**Sent:** Tuesday, March 29, 2022 12:24 PM

**To:** Debbie Pedro <dpedro@saratoga.ca.us>

**Cc:** James Lindsay <jlindsay@saratoga.ca.us>; Kookie Fitzsimmons <kookie@saratoga.ca.us>; Mary-Lynne Bernald <mlbernal@saratoga.ca.us>; Rishi Kumar <rkumar@saratoga.ca.us>; Tina Walia <twalia@saratoga.ca.us>; Yan Zhao <yzhao@saratoga.ca.us>

**Subject:** Comments on Housing Element EIR/NOP

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I have several concerns about the Notice of Preparation. Draft Program Environmental Impact Report (EIR) [https://www.saratoga.ca.us/DocumentCenter/View/2820/EIR-NOP-2022\\_02\\_28](https://www.saratoga.ca.us/DocumentCenter/View/2820/EIR-NOP-2022_02_28)

1. **It should have more detail**

For example, see the “City of San José – El Paseo & 1777 Saratoga Avenue Mixed-Use Village Notice of Preparation” at

<https://www.sanjoseca.gov/home/showpublisheddocument/78219/637698938650970000>

I searched for “water” and “utilities” in our EIA. Only the words themselves are found in the bulleted list of items to be addressed. The word “traffic” isn’t in the document at all.

2. **Effects of surrounding developments**

It must include the effect of surrounding developments beyond the borders of Saratoga. RHNA requires a state-wide increase in housing construction. In addition to RHNA’s, there are other developments like the 10-story El Paseo project and Costco in West Gate. Traffic from even further away will degrade our use of freeways. Our EIA must include the impact of developments outside our borders. Traffic from our development on Saratoga Avenue might be tolerable but when you add in traffic from El Paseo it will be gridlock. Each EIA might appear feasible but combined they are not. Getting the information and combining the impact are difficult tasks but nevertheless, they must be done.

3. **Other agencies’ assessments**

Our EIA probably will rely on other agencies’ assessments. I don’t know which agencies will address the impact on Saratoga but their assessment needs to be verified. As with RHNA, there is too much politicking to do otherwise. Take for example water, we are in the 3<sup>rd</sup> year of drought and their only solution is rationing. Adding more than 10% housing will make rationing permanent. Electricity outages are becoming expected. Weasel words like mitigate are frequently used when there isn’t a viable solution. Traffic hasn’t and won’t be solved with carpooling and public transit.

Ray Froess  
(408) 867-4233

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**From:** Ron Leckie <ron@theleckies.com>  
**Sent:** Wednesday, March 9, 2022 9:39 AM  
**To:** Debbie Pedro <dpedro@saratoga.ca.us>  
**Subject:** Housing Element EIR/NOP

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Dear Debbie,

I would like to submit my concerns as the Council's Housing Element Plan is submitted to the EIR process. Please share these concerns with the party performing the EIR.

My wife and I have lived on Kosich Drive, in the Saratoga Woods neighborhood of Saratoga. Along with many of my neighbors, I have been very vocal at every public input opportunity since we heard of the plan in late December, 2021. You should note that I am not normally vocal on such issues, but when I saw how badly the Planning Commission and City Council was handling the plan, I became very alarmed. The Council refused to take input from citizens like us who live to the north side of Saratoga and have ended up "dumping" the significant majority of new, higher-density housing to the north of a line demarcated by Cox Road coming from the west and transitioning into Highway 85 as it leads out of Saratoga to the east.

I estimate that some 3,000 existing homes are north of the above "line" and that is where the current plan inequitably "dumps" over 80% of the new housing! Our concerns are that this will have severe impact on the traffic, safety, schools and utilities that serve our neighborhood which lies along the stretch of Saratoga Avenue from Highway 85 north to the Saratoga/Lawrence Expressway junction.

When traffic and safety impacts are considered, it must be kept in mind that San Jose's approved development at El Paseo (just over 500 feet from our neighborhood) will also be burdening our Saratoga Avenue access and safety with the significant housing additions there - and this is only their first phase!

On top of this, Costco has received approval for one of their superstores to be built at the junction of Prospect and Lawrence Expressway. It is clear that this will also be burdening traffic/safety within just 1,000 feet of our community/neighborhood!

The Housing Element's plan to add a 10-story/410 home development at Prospect/Lawrence will not

only add to the congestion at these junctions, but will also eliminate several valued commercial businesses serving our neighborhood.

Additionally, the Housing Element's plan to add 344 homes at the Saratoga Ave./Cox Ave. junction will add substantial traffic to Saratoga Avenue from Highway 85 to Lawrence/Saratoga Ave. I assume that such high-density housing will require at least one more set of traffic lights between Cox and Highway 85 - causing even more flow interruptions.

One final point on traffic is that while Saratoga Avenue is currently a very busy route, this is lower than the pre-Covid levels that will be returning when companies like Apple move employees back into their offices. I understand that Apple Park apparently funded the widening of the on-ramp to Lawrence Expressway at Stevens Creek for it to be used as a main route for employees who commute in on Hwy 85, exiting at the Saratoga Avenue off-ramp. This traffic will be resuming soon to Saratoga Avenue!

As far as schools, the current plan only assigns around 20% of new homes to the Saratoga School District and pushes a huge load to other school districts. One example is our neighboring Prospect High School (PHS) which is currently at its capacity limits. This will be a challenge to education, funding and traffic at PHS. Most of the students daily cross the very busy junctions of Lawrence/Prospect, Saratoga Ave/Lawrence and Saratoga Ave/Prospect - exacerbating the above issues in addition to overloading the Campbell Union education system.

Regarding utilities, I am not an expert, but sincerely hope that this will be closely analyzed.

Thank you for sharing these inputs with the consultants who will be performing the EIR study and analysis. I hope that they will share our concerns and push back to distribute the housing load more evenly across the city by opening up the use of areas like Heritage Orchard, The Village - and also converting Argonaut, and Pierce/Saratoga-Sunnyvale/Cox commercial properties to mixed-use.

Sincerely,

*Ron*

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Ron Leckie

Saratoga Resident (32 years)

Saratoga Woods Community

cell - (408)621-1895

[ron@theleckies.com](mailto:ron@theleckies.com)

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March 24th, 2022

City of Saratoga Community Development Department  
Debbie Pedro, AICP, Community Development Director  
13777 Fruitvale Avenue  
Saratoga, CA 95070  
Phone: (408) 868-1231  
Email: dpedro@saratoga.ca.us

Re: Draft Environmental Impact Report (DEIR) for the City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezoning

Dear Ms. Pedro,

Santa Clara Valley Audubon Society (SCVAS) is one of the largest National Audubon Society chapters in California. SCVAS' mission is to promote the enjoyment, understanding, and protection of birds and other wildlife by engaging people of all ages in birding, education, and conservation. We appreciate the opportunity to provide scoping comments for the Draft Environmental Impact Report (DEIR) for the City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezoning.

### **Bird Safety**

Birds make people happy, are key indicators for healthy ecosystems, and are inherently valuable. At SCVAS, our bird conservation advocacy areas have focused on: endangered species, bird-safe buildings and architecture, and land use. Threats to local and migratory birds include: loss of habitat and migration rest areas, collisions with glass that kill an estimated hundreds of millions of birds each year in North America alone<sup>1</sup>, collisions with other human-made structures, Artificial Light At Night (ALAN), climate change, depredation by outdoor cats, and poisoning from rodenticides and insecticides. The Saratoga General Plan Update and Housing Element Update is a critical opportunity to address biodiversity and bird safety, and in doing so, protect open space and nature, for the benefit of both the community and natural environment. Within the DEIR, please analyze the effects of buildings, infrastructure, and

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<sup>1</sup> <https://academic.oup.com/condor/article/116/1/8/5153098?login=false>

transportation infrastructure on bird collisions. This includes: development near riparian corridors and in the hillsides, roads, glass, and lighting. Please analyze compliance with the Saratoga Hillside Specific Plan, the Village Specific Plan, and Area Plans.

- Please provide policies, standards, and mitigation measures to minimize the potential for bird collisions.

### **Lighting**

One focus of our advocacy has been on reducing ALAN. The impacts of night-time lighting are pervasive and affect biological function and behavior in almost all living things. A recent United Nations report highlights the many biological and ecological impacts of ALAN, and outlines guidelines to help preserve ecosystems, species and our night sky<sup>2</sup>. A scientific review draws together wide-ranging studies over the last decades that catalog the effects of ALAN upon living species and their environment. Numerous examples are given of how widespread exposure to ALAN is perturbing many aspects of plant and animal behavior and survival: foraging, orientation, migration, seasonal reproduction, and more<sup>3</sup>. Moreover, pervasive ALAN has been found to have a wide-ranging impact on human health. Cancer, sleep disorders, and a degradation of mental health have all been linked to pervasive ALAN<sup>4</sup>. Addressing ALAN and setting clear limits on lighting within the General Plan Update and Housing Element Update can have a great positive impact on the community. Within the DEIR please analyze the effects of ALAN on biological resources and human health. Please include in the analysis: types of lighting, the correlated color temperature and wavelength of lighting, when and where lighting is located, and the purposes different lighting serves.

- Please provide policies, standards and mitigation measures to minimize the impacts of Artificial Light at Night.

### **Biodiversity**

According to a new study mapping where biodiversity is most at risk in the US, California has the highest concentration of imperiled species in the country.

- Please analyze the effects of development on habitat and biodiversity loss.
- Please include a separate study for habitat and wildlife in the hillsides.

### **Allendale/Chester**

As Saratoga addresses our housing crisis through the Housing Element Update, the city should at the same time preserve community heritage, the natural environment and biodiversity. The

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<sup>2</sup> <https://www.iau.org/static/publications/dqskies-book-29-12-20.pdf>

<sup>3</sup> <https://www.frontiersin.org/articles/10.3389/fnins.2020.602796/full>

<sup>4</sup> <https://acsjournals.onlinelibrary.wiley.com/doi/abs/10.1002/cncr.33392>;  
<https://time.com/5033099/light-pollution-health/>

12.86-acre parcel located at 14001 Chester Avenue (“Allendale/Chester”) preserves the rural character of Saratoga’s history and heritage and sense of place and access to nature that persists and benefits all Saratoga residents. 1.09 acres of this parcel is zoned as R-1-40,000 Agricultural Preserve/Open Space (AP/OS), and the remaining 11.77 acres are zoned AP/OS, according to a City Council Ordinance from June, 2013<sup>5</sup>. Developing 24 units on 12.13 acres of this parcel and rezoning to R-1-20,000 would remove a beloved community open space and access to nature that it provides.

Residents of the area have identified 61 bird species and eight mammals<sup>6</sup> at the Allendale/Chester site in 2021 and there is a small creek that abuts the location that has nesting Pacific Slope Flycatchers. Pacific Slope Flycatchers breed along the Pacific coast and favor shade and groves along streams; adding more homes and development to this area could affect the flycatchers’ breeding access at this location. This is a diverse, unique agricultural landscape and should be preserved as such. Transforming it into more housing for the rich would reject the history and uniqueness of the parcel. Please study the effects of rezoning the 12.13 acres located at 14001 Chester Avenue to R-1-20,000 on local access to nature, local biodiversity, and riparian corridors.

- Please analyze and mitigate the loss of open space and agricultural resources
- Please provide a 150-ft buffer from the creeks to protect the creek and its riparian corridor, and to support biodiversity.

Thank you for your consideration. For any questions or requests for more information, please email [advocate@scvas.org](mailto:advocate@scvas.org).

Sincerely,  
Giulianna Pendleton  
Environmental Advocacy Assistant

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<sup>5</sup> Ordinance Attached (Attachment 1a, Attachment 1b)

<sup>6</sup> Species List Attached (Attachment 2)

## ORDINANCE NO. 306

### AN ORDINANCE APPLYING R-1-40,000 ZONING TO APN 397-01-007 AND AP/OS OVERLAY ZONING TO APN'S 397-01-006 AND 397-01-007 LOCATED AT 14001 CHESTER AVENUE

**Whereas**, the City of Saratoga is applying R-1-40,000 zoning to an approximately 1.09-acre parcel (APN 397-01-007) and Agricultural Preserve/Open Space Overlay (AP/OS) zoning to an approximately 12.86-acre parcel (APN's 397-01-006 and 397-01-007), all parcels being located at 14001 Chester Avenue. This ordinance was introduced following a duly noticed public hearing on (insert date). The Planning Commission recommended adoption of this ordinance following a duly noticed public hearing held April 24, 2013.

**Therefore, the City Council hereby ordains as follows:**

#### **Section 1. Adoption.**

The City Zoning Map is hereby amended to add R-1-40,000 to the 1.09-acre parcel (APN 397-01-007) and Agricultural Preserve/Open Space (AP/OS) overlay zoning to the entire 12.86-acre parcel (APN 397-01-006 and 397-01-007) described on Exhibit A attached hereto. The R-1-40,000 zoning of 397-01-007 will become effective when the lot-line adjustment has been recorded with the Santa Clara County Recorder's Office.

#### **Section 2. California Environmental Quality Act**

The application of the R-1-40,000 and AP/OS overlay zoning to the specified properties is not subject to the California Environmental Quality Act because it will impose greater land use restrictions on the property than currently exist, will involve no physical change to the environment, assure the maintenance, restoration, enhancement, or protection of the environment, and it can be seen with certainty that there is no possibility that the overlay zoning may have a significant effect on the environment in accordance with CEQA Guidelines Sections 15308 and 15061(b)(3).

#### **Section 3. Publication.**

This ordinance or a comprehensive summary thereof shall be published in a newspaper of general circulation of the City of Saratoga within fifteen days after its adoption.

Following a duly noticed public hearing the foregoing ordinance was introduced and read at the regular meeting of the City Council of the City of Saratoga held on June 5, 2013 and was adopted by the following vote following a second reading on June 19, 2013.

COUNCIL MEMBERS:

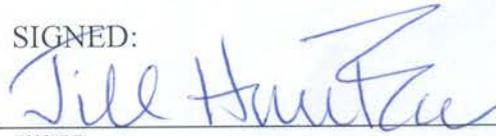
AYES: Council Member Chuck Page, Manny Cappello, Vice Mayor Emily Lo, Mayor Jill Hunter

NOES: None

ABSENT: Council Member Howard Miller

ABSTAIN: None

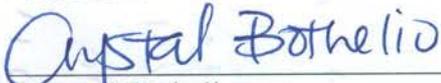
SIGNED:



Jill Hunter

MAYOR, CITY OF SARATOGA, CALIFORNIA

ATTEST:

  
Crystal Bothelio  
CITY CLERK

DATE:

6/20/2013

APPROVED AS TO FORM:



Richard Taylor  
CITY ATTORNEY

DATE:

6/19/13

ALLENDALE AVENUE

N81°53'50"W 399.92'

S01°17'26"E 539.02'

N01°17'26"W 539.02'

CHESTER AVENUE

N81°53'50"W 385.77'

S01°00'32"E 265.17'

PARCEL A  
APN 397-01-006  
A (AP/OS) ZONING

R-1-40,000 (AP/OS)

S81°53'50"E 253.10' L5

PARCEL B  
APN 397-01-007

STREET R/W  
465-M-39

N03°42'06"E 253.71'

S49°23'38"E 577.87'

P.O.B.

T.P.O.B.  
PCL.B



0 70 140  
1 IN. = 140 FT.

CITY OF SARATOGA

EXHIBIT A  
R-1-40,000 AND AP/OS REZONING  
14001 CHESTER AVENUE



## SARATOGA CITY COUNCIL

**MEETING DATE:** June 5, 2013

**AGENDA ITEM:**

**DEPARTMENT:** Community Development

**CITY MANAGER:** Dave Anderson

**PREPARED BY:** Christopher Riordan

**DIRECTOR:** James Lindsay

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**SUBJECT: Adoption of an ordinance applying R-1-40,000 zoning to an adjusted 1.09-acre parcel located at 14001 Chester Avenue and applying AP/OS Overlay Zoning to the entire 12.86-acre site.**

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**RECOMMENDED ACTION:**

Conduct the public hearing, introduce and waive the first reading of the ordinance and direct staff to place the ordinance on the consent calendar for adoption at the next regular meeting of the City Council.

**PROJECT SUMMARY:**

The 12.86-acre project site is located at 14001 Chester Avenue. The site consists of two separate adjacent legal parcels: Parcel A is 4.88-acres and is located at the intersection of Allendale and Chester Avenues and Parcel B is 7.9-acres and is located near the intersection of Chester Avenue and Arcadia Palms Drive. The uses on the site include a vineyard and a one story single-family home. The entire site is subject to an existing Williamson Act Contract.

*Lot Line Adjustment:* The single-family home, landscaping and related site improvements comprise a 1.09-acre fenced area in the southeastern portion of Parcel B. The Public Works Department have tentatively approved the applicant's application for a lot line adjustment to relocate the existing lot line separating Parcel A and Parcel B pending a decision by the Council on the rezoning request so that the single-family home would be located on its own parcel. Parcel A would increase to 11.77-acres and Parcel B (containing the residence) would be reduced to 1.09 acres. No new lots are being created.

*R-1-40,000 Zoning Amendment:* Both parcels have existing Agricultural (A) zoning. City Code Section 15-11-050 (Determination of Lot Size) specifies a minimum net site area of five acres for parcels within the Agricultural Zoning District. Because the adjusted Parcel B would be smaller than the five acre minimum the applicant is requesting that Parcel B be rezoned from Agricultural to R-1-40,000. The proposed R-1-40,000 zoning would be consistent with the existing zoning of the lots in the immediate vicinity as well as all the existing lots along Chester Avenue. A copy of the ordinance applying R-1-40,000 zoning to Parcel B is included as Attachment #1. The underlying General Plan land use designation for the parcels is Very Low Density Residential (RVLD) which is consistent with R-1-40,000 district.

If the rezoning is approved than the lot and existing residence will meet all the development standards for the R-1-40,000 district and the Public Works Department can issue a final approval of the lot-line adjustment

*Agricultural Preserve/Open Space Overlay Zoning Amendment:* The entire 12.86-acre project site is subject to the California Land Conservation Act, better known as the Williamson Act. On January 1, 1972, the property owner entered into this agreement with the City of Saratoga to voluntarily restrict the land to agricultural and open-space uses. The vehicle for this agreement is a rolling term 10-year contract (unless either party files a “notice of nonrenewal” the contract is automatically renewed annually for an additional year). In return, the property is assessed at a rate consistent with its agricultural use. The AP-OS overlay promotes agricultural uses and per City Code Article 15-15 (Agricultural Preserve Open Space Overlay District) such zoning amendment is required for land on which Williamson Act contracts are executed. A copy of the ordinance applying AP/OS overlay zoning to the property is included as Attachment #1.

The lot-line adjustment and the existence of the residence on the property do not violate the provisions of the Williamson Act Contract. Under the Contract, single-family dwellings for the property owner or lessee of the property are considered incidental to the agricultural use of the property and are compatible with the agricultural use of the land.

#### Planning Commission Review

The Planning Commission reviewed the Zoning Ordinance Amendments during their meeting of April 24, 2013 and recommended the City Council approve them.

#### **ENVIRONMENTAL DETERMINATION**

The California Environmental Quality Act (CEQA) applies only to projects which have the potential of causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The proposed Zoning Amendments are not subject to CEQA because they will impose greater land use restrictions on the properties than currently exist, will involve no physical change to the environment, assure the maintenance, restoration, enhancement, or protection of the environment, and it can be seen with certainty that there is no possibility of a significant effect on the environment in accordance with CEQA Guidelines Sections 15308 and 15061(b)(3).

#### **FISCAL IMPACTS:**

None

#### **CONSEQUENCES OF NOT FOLLOWING RECOMMENDED ACTION:**

The Public Works Department would not approve the Lot Line Adjustment application to relocate the existing lot line to create a 1.09-acre parcel encompassing the single-family home.

#### **ALTERNATIVE ACTION:**

Deny the proposed ordinance.

#### **FOLLOW UP ACTION:**

Staff will agendize the ordinance for a second reading at a future City Council meeting.

#### **ADVERTISING, NOTICING AND PUBLIC CONTACT:**

All notice requirements of Government Code Section 65091 have been satisfied as required for amendment of the City General Plan Land Use Map and Zoning Ordinance. Furthermore, all notice requirements for final approval of the proposed annexation have been satisfied. In addition, pursuant to Government Code 54954.2, this item was properly posted as a City Council agenda item and was included in the packet made available on the City’s website in advance of

the meeting. A copy of the agenda packet is also made available at the Saratoga Branch Library each Monday in advance of the Council meeting.

**ATTACHMENT:**

1. Ordinance

**ORDINANCE \_\_\_\_\_**

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COUNCIL MEMBERS:

AYES:

NAYS:

ABSENT:

ABSTAIN:

SIGNED:

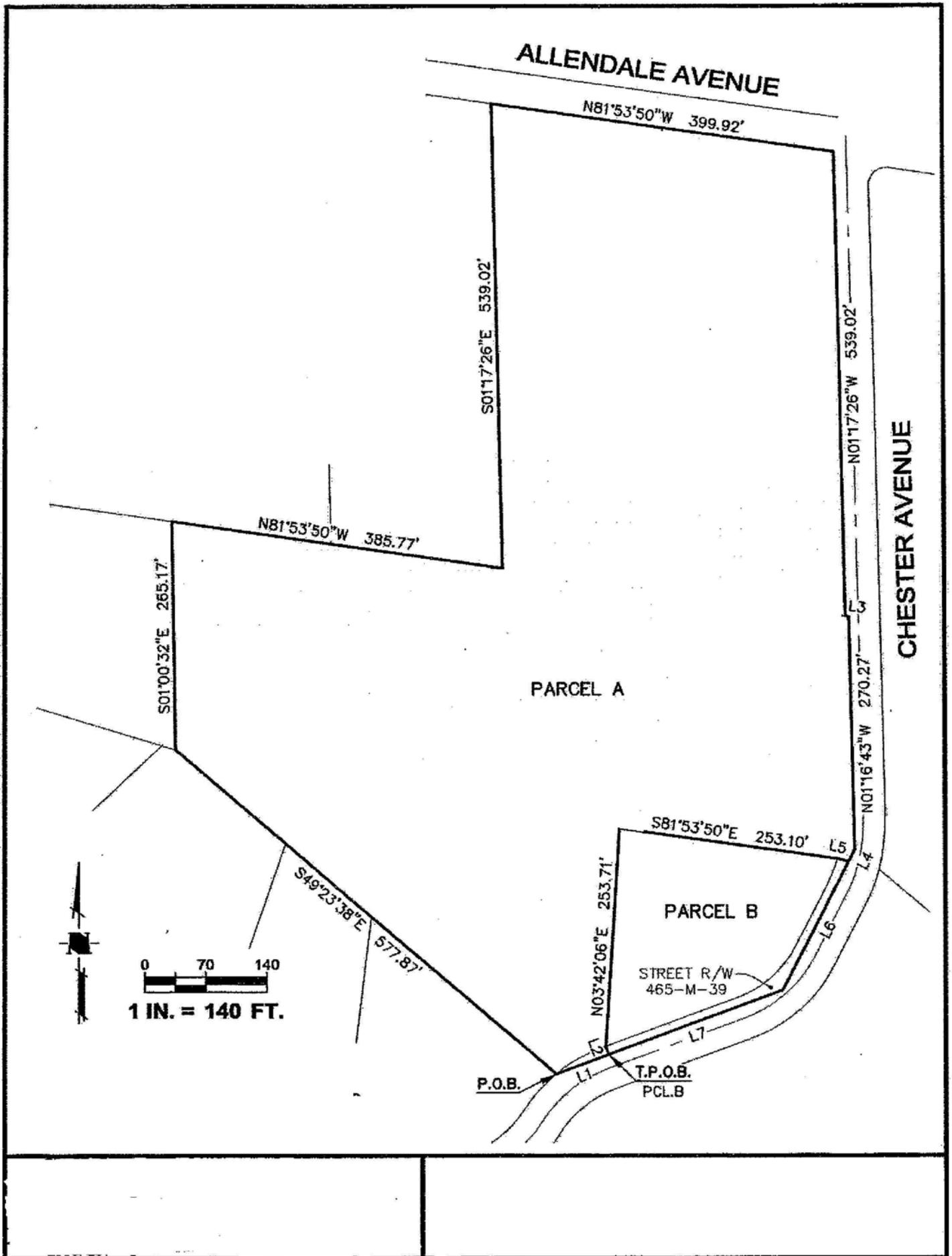
\_\_\_\_\_  
JILL HUNTER,  
MAYOR OF THE CITY OF SARATOGA  
Saratoga, California

ATTEST:

\_\_\_\_\_  
CRYSTAL BOTHELIO  
CLERK OF THE CITY OF SARATOGA  
Saratoga, California

APPROVED AS TO FORM:

\_\_\_\_\_  
RICHARD TAYLOR, CITY ATTORNEY



## 14001 Chester Avenue Species List (2021)

### Birds Recorded:

1. Bewick's Wren
2. Mourning Dove
3. Acorn Woodpecker
4. House Crow
5. Black-headed Grosbeak
6. Spotted Towhee
7. Great Blue Heron
8. Great Horned Owl - pair on tree. calling at night
9. Red-tailed Hawk - pairs, displaying. as many as 3 at a time
10. Western Screech-Owl
11. Hooded Oriole
12. Chestnut-backed Chickadee
13. Black Phoebe
14. Oak Titmouse
15. Bushtit
16. Anna's Hummingbird
17. Turkey Vulture
18. California Scrub Jay
19. Nuttall's Woodpecker
20. Barn Swallow
21. California Quail
22. Lesser Goldfinch
23. Northern Mockingbird
24. Dark-eyed Junco
25. Vaux's Swift
26. Northern Flicker
27. Canada Goose - flyby
28. California Gull - flyby
29. Band-tailed Pigeon
30. Western Bluebird
31. American Robin
32. California Towhee
33. Sharp-shinned Hawk
34. Mallard - flyby
35. White-breasted Nuthatch
36. Ruby-crowned Kinglet
37. White-crowned Sparrow
38. Brown Creeper
39. Yellow-rumped Warbler
40. Townsend's Warbler
41. Hermit Thrush
42. Golden-crowned Sparrow
43. Western Bluebird

44. Great Egret
45. Cedar Waxwing
46. Pine Siskin
47. White-tailed Kite - flyby
48. Hairy Woodpecker
49. Merlin
50. Eurasian Starling
51. Fox Sparrow
52. Violet-green Swallow.
53. Brown-headed Cowbird
54. Northern Raven
55. Cooper's Hawk
56. Barn Owl. Dusk, flyby on Apricot Hill rd. Flew towards vineyard
57. Selasphorus Hummingbird (likely female/imm male Allen's)
58. California Thrasher
59. White-throated Swift
60. Steller's Jay
61. Killdeer - Heard at distance

#### **Mammals Recorded**

1. Mule Deer
2. Bobcat
3. Coyote
4. Raccoon
5. American Opossum
6. Striped Skunk
7. Cottontail Rabbit
5. Grey Fox

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**From:** Shauna Cai <[shauna.cai@gmail.com](mailto:shauna.cai@gmail.com)>

**Sent:** Tuesday, March 29, 2022 9:27 PM

**To:** [dpendro@saratoga.caus](mailto:dpendro@saratoga.caus) <[dpendro@saratoga.caus](mailto:dpendro@saratoga.caus)>; Yan Zhao <[yzhao@saratoga.ca.us](mailto:yzhao@saratoga.ca.us)>

**Cc:** Tina Walia <[twalia@saratoga.ca.us](mailto:twalia@saratoga.ca.us)>; Rishi Kumar <[rkumar@saratoga.ca.us](mailto:rkumar@saratoga.ca.us)>; Mary-Lynne Bernald <[mlbernalld@saratoga.ca.us](mailto:mlbernalld@saratoga.ca.us)>; Kookie Fitzsimmons <[kookie@saratoga.ca.us](mailto:kookie@saratoga.ca.us)>

**Subject:** Housing element

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Debbie and Yan,

Thank you for your presentation today.

Regarding environmental impact, I have concerns of the three-story building at village east.

Being a resident at the end of Arbeleche Ln, we are just next to the small area of current five apartments. All townhomes of this area are two-story. Some three-story building next to us make the cluster uneven and no privacy for us.

Arbeleche Ln is a very narrow drive way. Even now we have to be very carefully to place our garbage bins far enough to leave space for bins to be picked by garbage collection tracks. We often do not have enough space if everyone wants to empty all three bins.

I believe the situation would be even worse if a three-story building is next to us, unless the residences in this building do not use Arbeleche Ln.

This is a serious environmental impact. Please reconsider your plan carefully and completely.

Thanks and regards,

Shauna

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

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**From:** Vivek Tiwari <spiderhunters@gmail.com>  
**Sent:** Monday, March 21, 2022 10:35 AM  
**To:** Debbie Pedro <dpedro@saratoga.ca.us>  
**Subject:** Updated Comments on Housing Element EIR/NOP

**CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.**

To: Saratoga City Council

Nme: Vivek Tiwari

Affiliation: Self, (employed at Intel Corporation. Title: Vice President, Intel Product Assurance and Security)

Address: 14022 Apricot Hill, Saratoga, CA 95070

Phone: 408-386-2735

I am writing in relation to the inclusion of the Allendale/Chester vineyard into the Housing Element despite the opposition of the Saratoga residents in that area.

This is a unique part of Saratoga's heritage and its agricultural zoning is important for Saratoga residents as the last remaining open patch which provides a link to the rich past and important to the future of Saratoga community as being a unique desirable community and city. If this property was to be developed, Saratoga will become even closer to being like other over-developed communities in the Bay Area with little of its original allure.

This property is also critical to wildlife and the creek that flows on the boundary of this lot is critical habitat for several species of birds and mammals. It also acts like a buffer and a corridor connecting the habitats in the hills to the creeks downstream. I welcome the City Council to come and spend an hour with me and I can show the bird diversity of this creek to them in person.

It is really important that the wishes of the neighbors and other concerned Bay Area citizens, as represented by Santa Clara Valley Audubon Society are respected as part of the Environmental Impact Review. In a separate message I will forward comments from SCVAS that need to be incorporated into any assessments. This property ought to remain agricultural zoning from the City's perspective. If the owner wants to sell, it should be an independent process. The EIR needs to consider that other properties on the west and south side of Allendale are zoned as R-1-40,000, 1-acre lots. At the most this property should remain that. And its really important that the creek and all its vegetation be protected with sufficient buffer space to protect its special status.

Sincerely,

Vivek Tiwari

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

**APPENDIX B**  
**COAST RIDGE ECOLOGY DOCUMENTATION**



## **Tree-Dominated Habitats**

### **Blue Oak Woodland**

Dominant Species in Planning Area: Blue oak (*Quercus douglasii*)

Presence in Planning Area: 103 Acres

Blue oak woodlands are dominated by blue oaks, which make up 85 to 100 percent of the tree canopy cover. The habitat is similar to a savannah, with a canopy layer comprised of scattered oaks between 5 and 15 m (16 to 50 ft) tall, and an herbaceous understory dominated by annual grasses such as brome (*Bromus spp.*), wild oats (*Avena spp.*) and foxtail (*Hordeum spp.*). Perennial native grasses such as needlegrass (*Stipa spp.*) may occur in smaller quantities. In the Coast Range, common associates in the canopy layer include coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). Occasional patches of shrubs are present, including poison oak (*Toxicodendron diversilobum*), California coffeeberry (*Frangula californica*), and California buckeye (*Aesculus californica*). These shrub stands are usually associated with rock outcrops. Blue oak woodlands are usually found in dry, hilly terrain with shallow, rocky, infertile, well-drained soils.

Blue oak woodlands are protected under the Oak Woodlands Protection Act (Section 21083.4 of the Public Resources Code).

### **Coastal Oak Woodland**

Dominant Species in Planning Area: Coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*)

Presence in Planning Area: 1,737 Acres

Coastal oak woodlands are extremely variable. The overstory consists of deciduous and evergreen hardwoods (mostly oaks 4.5-21 m (15 to 70 ft) tall sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory is equally variable. In some instances, it is composed of shrubs from adjacent chaparral or coastal scrub which forms a dense, almost impenetrable understory. More commonly, shrubs are scattered under and between trees. Where trees form a closed canopy, the understory varies from a lush cover of shade-tolerant shrubs, ferns, and herbs to sparse cover with a thick carpet of litter. When trees are scattered and form an open woodland, the understory is grassland, sometimes with scattered shrubs. The interrelationships of slope, soil, precipitation, moisture availability, and air temperature cause variations in structure of coastal oak woodlands. (CWHR, 2005)

From Sonoma County south, the coastal oak woodlands are usually dominated by coast live oak. In many coastal regions, coast live oak is the only overstory species. In mesic sites, trees characteristic of mixed evergreen forests mix with coast live oak, such as California bay (*Umbellularia californica*), Pacific madrone (*Arbutus menziesii*), and tan oak (*Notholithocarpus densiflorus*). On drier, interior sites, coast live oak mixes with valley oak, blue oak, and foothill pine (*Pinus sabiniana*). Within the City of Saratoga

sphere of influence, CALVEG data indicates that the dominant tree species of the coastal oak woodlands are coast live oak and California bay. Typical understory plants in dense coast live oak woodlands are shade tolerant shrubs such as California blackberry (*Rubus ursinus*), creeping snowberry (*Symphoricarpos mollis*), toyon (*Heteromeles arbutifolia*), and herbaceous plants such as bracken fern (*Pteridium aquilinum*), California polypody (*Polypodium californicum*), fiesta flower (*Pholistoma auritum*), and miner's lettuce (*Claytonia perfoliata*). In drier areas where oaks are more widely spaced, the understory may consist almost entirely of grassland species with few shrubs. Where coast live oak woodlands intergrade with chaparral, species such as greenleaf Manzanita (*Arctostaphylos patula*), chamise (*Adenostoma fasciculatum*), gooseberries (*Ribes spp.*), and ceanothus (*Ceanothus spp.*) form the understory. Where the habitat intergrades with coastal scrub, typical understory species are bush monkeyflower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and California sagebrush (*Artemisia californica*).

Coast live oak woodlands provide habitat for many wildlife species, such as mule deer (*Odocoileus hemionus*), grey fox (*Urocyon cinereoargenteus*), squirrels, and California quail which rely on the oak acorns as a valuable source of food during the dry season. Many species of birds also use coastal oak woodlands as nesting and foraging habitat. Due to the large habitat value provided by coastal oak woodlands, they are protected under the Oak Woodlands Protection Act. In addition, coastal oak woodlands dominated by California bay are considered a sensitive plant community by the California Department of Fish and Wildlife (Rank: G4 S3).

### **Montane Hardwood-Conifer**

Dominant Species in Planning Area: Douglas fir (*Pseudotsuga menziesii*), Coast live oak (*Quercus agrifolia*), Tan oak (*Notholithocarpus densiflorus*), Coast redwood (*Sequoia sempervirens*)

Presence in Planning Area: 475 Acres

Montane hardwood-conifer (MHC) habitats are mosaic habitats, with at least one-third of the canopy cover consisting of conifers and one-third consisting of broad-leaved trees. This pattern often occurs as small pure stands of conifers mixed with small stands of broad-leaved trees. The common structure of this habitat is an upper canopy formed by conifers up to 65 m (200 ft) tall with a lower canopy comprised of broad-leaved trees 10-30 m (30-100 ft) tall. Due to the dense canopy layer, the understory layer is relatively sparse. However, a dense shrub layer can form after disturbance such as fire or logging. In many areas the understory primarily consists of a thick layer of dead needles, leaves, and branches. This habitat generally occurs in mountainous terrain with narrow valleys with coarse, well drained mesic soils.

Due to its nature as a transitional habitat type between dense coniferous forest and more open woodlands, a wide variety of tree species are present in this habitat. In the central coast, common canopy species include coast live oak, Douglas fir, big-leaf maple (*Acer macrophyllum*), Pacific madrone, tan oak, canyon live oak (*Quercus chrysolepis*), Coulter pine (*Pinus coulteri*), coast redwood, California black oak (*Quercus kelloggii*), and Ponderosa pine (*Pinus ponderosa*). Within the City of Saratoga sphere

of influence, CALVEG data indicates that the dominant tree species are Douglas fir, coast live oak, tan oak, and coast redwood.

The montane hardwood-conifer habitat is particularly valuable to cavity-nesting bird species and certain species of amphibians which inhabit the thick detritus layer.

### **Redwood Forest**

Dominant Species: Redwood, Douglas fir

Presence in Planning Area: 160 Acres

The appearance of this habitat is determined by the growth stage of the redwood trees that define it. Second growth redwood habitats are made up of a dense canopy of younger trees up to 32 feet tall over an open, parklike understory. As the stands mature, they become even in height and suppress understory vegetation. Virgin old growth forms of this habitat are comprised of large (70-120 m/230-400 ft) trees with a very dense shrub understory 3-4 m (10-13 ft) tall. While coast redwoods are the most conspicuous tree species within this habitat, a variety of other tree species can be present at varying densities. In the Central Coast ecoregion, redwood is dominant along the coast and associated with Douglas fir, tan oak, and Pacific madrone. Other tree species present in smaller densities include Bishop pine (*Pinus muricata*), Monterey pine (*Pinus radiata*), sugar pine (*Pinus lambertiana*), Jeffrey pine (*Pinus jeffreyi*), California bay, Oregon ash (*Fraxinus latifolia*), and big-leaf maple. Understory vegetation is highly variable, with important species being Western sword fern (*Polystichum munitum*), deer fern (*Blechnum spicant*), chain fern (*Woodwardia fimbriata*), red clintonia (*Clintonia andrewsiana*), salal (*Gautheria shallon*), California huckleberry (*Vaccinium ovatum*), oceanspray (*Holodiscus discolor*), thimbleberry (*Rubus parviflorus*), blueblossom (*Ceanothus thrysiflorus*), coyote brush, poison oak, Idaho fescue (*Festuca idahoensis*), and Western fescue (*Festuca occidentalis*). Coastal oak woodland is a common associate of the redwood habitat, and annual/perennial grasslands are often intermixed in the form of isolated glades and prairies.

These habitats are highly influenced by coastal fog and marine air, and thus are restricted to coastal regions. This habitat is considered to be a sensitive plant community by the California Department of Fish and Wildlife (Rank: G3 S3).

### **Valley Oak Woodland**

Dominant Species: Valley oak (*Quercus lobata*)

Presence in Planning Area: 390 Acres

Valley oak woodlands are dominated by valley oaks, which make up the vast majority of the canopy cover. This habitat varies in composition from savannah-like, with a low density of trees to forest-like, with a partial shrub layer. Usually, less dense woodlands are found in dry uplands and denser stands are found in lowlands, especially along natural drainages. In the Coast Ranges, tree associates include coast live oak and foothill pine. The shrub layer (where it is present) normally consists of bird-dispersed

species such as poison oak, blue elderberry (*Sambucus nigra ssp. caerulea*), toyon, California coffeeberry, and California blackberry. The herbaceous layer is dominated by grasses such as wild oats, brome, barley, ryegrass (*Festuca spp.*) and needlegrass.

The best developed stands of valley oak woodland are found in deep, well drained soils in valley bottoms where propagation and recruitment occur following flooding and fires. Due to anthropogenic alterations in flood and fire regimes, recruitment of new valley oaks is limited and most stands consist entirely of large mature trees. As a result, this habitat is considered sensitive by the California Department of Fish and Wildlife (Rank: G3 S3). It is also protected under the Oak Woodlands Protection Act.

### **Valley Foothill Riparian**

Dominant Species: Cottonwood (*Populus spp.*), California sycamore (*Platanus racemosa*), valley oak

Presence in Planning Area: 83 Acres

Valley foothill riparian habitats are composed primarily of deciduous trees associated with low velocity flows, flood plains, and gentle topography. Canopy cover is approximately 20 to 80 percent, and is comprised of western sycamore, cottonwood, and valley oak. The subcanopy layer is comprised of hydrophytic trees such as alder (*Alnus spp.*), willows (*Salix spp.*), and boxelder (*Acer negundo*). Generally, the understory layer is formed by a very dense association of shrubs such as poison oak, California blackberry, and blue elderberry. Trees and shrubs are often found to be festooned by lianas (such as California wild grape (*Vitis californica*)), which can provide over 30 percent of the ground cover. This habitat is limited to riparian areas, with an abrupt transition to other non-riparian habitats at the boundary.

### **Shrub-Dominated Habitats**

#### **Chamise-Redshank Chaparral**

Dominant Species: Chamise (*Adenostoma fasciculatum*)

Presence in Planning Area: 241 Acres

In the Central Coast ecoregion, this habitat is dominated by chamise shrubs 1-2 m (3-6 ft) in height, with chamise often exceeding 80 percent of the total shrub cover. Other shrubs can be present in lower quantities, including poison oak, toyon, and manzanita species. In the Coast Ranges, ceanothus is the most frequent associate. Generally this habitat consists of an impenetrable shrub layer without an established herbaceous layer, due to thin soils with little accumulation of biological material. Fire regimes are important to this habitat, with older unburned stands exhibiting lower species diversity than burned stands.

#### **Coastal Scrub**

Dominant Species: California sagebrush, Coyote brush

### Presence in Planning Area: 218 Acres

This habitat is highly variable, with several subdefinitions depending on the habitat location and dominant species. Two of these sub-habitats are found within the Saratoga Planning Area: Northern coastal scrub (dominated by coyote brush), and southern sage scrub (dominated by California sagebrush). Northern coastal scrub within the planning area is dominated by dense stands of coyote brush, with shrubs reaching up to 7 feet tall. Common associates in this habitat include blueblossom ceanothus, coffeeberry, bush monkeyflower, California blackberry, and poison oak. Southern sage scrub is recognized by the dominance of California sagebrush, with black sage and California buckwheat (*Eriogonum fasciculatum*) also being common. These sagebrush-dominated habitats generally possess a bare zone approximately 3 feet wide around the periphery of shrubs which extends into surrounding grasslands.

This habitat appears to tolerate drier conditions than other shrub-dominated habitats, and is often found on steep slopes with sandy, mudstone, or shale soils. Coastal scrub habitats are not sensitive to disturbance, and in addition to rapidly colonizing newly disturbed areas, do not substantially change structure in the absence of anthropogenic disturbance. Because the species that dominate this habitat are fire-adapted, shrubs rapidly resprout following wildfires.

### **Herbaceous-Dominated Habitats**

#### **Annual Grassland**

### Presence in Planning Area: 174 Acres

Annual grassland habitats are dominated by annual non-native grasses and herbs. Structure of these grasslands differs greatly depending on annual grazing and precipitation patterns. Seeds germinate after fall rains, growing slowly until spring when the warm weather stimulates rapid growth. These plants die off by summer, resulting in large quantities of dead plant material. The dominant grasses in these habitats are introduced annual species, including wild oats, ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), and wild barley (*Hordeum spp.*). A wide variety of non-native herbs are found among the grasses, including filaree (*Erodium spp.*), clovers (*Trifolium spp.*), and bur clover (*Medicago polymorpha*). Spring grazing can stimulate the growth of native summer-annual species such as tarweed (*Hemizonia spp.*).

These habitats were once dominated by native perennial bunchgrasses, however centuries of unregulated grazing, introduction of nonnative European annual grasses, and human disturbance have substantially altered the species composition. Relict stands of native perennial grasses can still be found in less disturbed areas, and vernal pools can persist in small hardpan soil depressions. While the structure of the grasslands has changed, native grassland-adapted animal species are still prevalent throughout this habitat.

### **Developed Habitats**

#### **Cropland**

Presence in Planning Area: 359 Acres

Cropland habitat consists of agricultural areas where a variety of food crop plants are grown. These can include rice, corn, grapes, fruit trees, and many others. Most crops are annual species that are planted in spring and harvested during summer or fall. In many cases, second crops are planted after the first are harvested. While croplands are considered anthropogenic habitats, they can provide value to wildlife due to the abundance of food resources.

### **Urban**

Presence in Planning Area: 6,055 Acres

Urban areas are dominated by impervious surfaces (such as concrete, buildings and roads). Vegetative cover consists of non-native and ornamental plants in the form of tree groves, lawns, gardens, road dividers, and hedges. Wildlife species diversity and vegetative cover both decrease towards the center of the urban environment, usually a heavily-developed downtown. However, in less developed urban areas some species of wildlife can survive due to the higher density of plants creating an approximate substitute for the natural environment.

**Add References (CalVeg, etc.)**

**Plant Community Status**

| <b>CWHR Plant Community</b> | <b>Dominant Species/Alliances (USFS)</b>                                             | <b>CDFW Sensitive Plant Community?</b> | <b>Ranking</b> |
|-----------------------------|--------------------------------------------------------------------------------------|----------------------------------------|----------------|
| Blue Oak Woodland           | Blue oak                                                                             | No                                     | G4 S4          |
| Coastal Oak Woodland        | Coast live oak                                                                       | No                                     | G5 S4          |
|                             | Coastal mixed hardwood (Coast live oak-California bay-Tanoak-Madrone)                | No                                     | G5 S4          |
|                             | California bay                                                                       | Yes                                    | G4 S3          |
| Montane Hardwood-Conifer    | Pacific Douglas fir-Coast live oak                                                   | No                                     | G3 S4          |
|                             | Pacific Douglas fir-Coastal mixed hardwood                                           | No                                     | G5 S4          |
|                             | Pacific Douglas fir                                                                  | No                                     | G5 S4          |
| Redwood Forest              | Coast redwood-Pacific Douglas fir/Tanoak                                             | Yes                                    | G3 S3          |
| Valley Oak Woodland         | Valley oak                                                                           | Yes                                    | G3 S3          |
| Valley Foothill Riparian    | Mixed riparian hardwood (Cottonwoods-Alders-Western sycamore-Valley oak-Willows-Ash) | Yes                                    | G3 S3*         |
| Chamise-Redshank Chaparral  | Chamise                                                                              | No                                     | G5 S5          |
| Coastal Scrub               | California sagebrush                                                                 | No                                     | G4 S5          |
|                             | Coyote brush                                                                         | No                                     | G5 S5          |
| Annual Grassland            | Annual grasses and forbs (wild oats, brome, etc.)                                    | No                                     | None           |

\*Exact rank depends on local species dominance. All alliances considered sensitive.

**Key:**

Hyphens (-) indicate potential co-dominance  
 Slashes (/) denote canopy vs. understory vegetation

**Natureserve Rankings:**

G Global Rank  
 S State Rank  
  
 1 Critically Imperiled  
 2 Imperiled  
 3 Vulnerable  
 4 Apparently Secure  
 5 Secure

**Source:** California Department of Fish and Wildlife. (2018). California Natural Community List. Updated January 24, 2018. Retrieved August 20, 2018 from <https://www.wildlife.ca.gov/data/VegCAMP/Natural-Communities/Background>

**Table 1: Special Status Animals Present or Potentially Present in Saratoga**

| Common Name<br><i>Scientific Name</i>                         | Listing Status<br>(USFWS/CDFG) | General Habitat Requirements                                                                                                                                                                                                                                     |
|---------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Amphibians</b>                                             |                                |                                                                                                                                                                                                                                                                  |
| California tiger salamander<br><i>Ambystoma californiense</i> | FT/CT                          | Grasslands. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.                                                                                                                         |
| Santa Cruz black salamander<br><i>Aneides niger</i>           | --/CSC                         | Mixed deciduous and coniferous woodlands, coastal grasslands. Adults found under rocks, talus, and damp woody debris.                                                                                                                                            |
| California giant salamander<br><i>Dicamptodon ensatus</i>     | --/CSC                         | Wet coastal forests near streams and seeps. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.                                                             |
| California red-legged frog<br><i>Rana draytonii</i>           | FT/CSC                         | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to upland estivation habitat such as mammal burrows.     |
| Red-bellied newt<br><i>Taricha rivularis</i>                  | --/CSC                         | Coastal drainages in forests and woodlands. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate. |
| <b>Birds</b>                                                  |                                |                                                                                                                                                                                                                                                                  |
| Cooper's hawk<br><i>Accipiter cooperii</i>                    | --/WL                          | Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.                                                                                  |
| Long-eared owl<br><i>Asio otus</i>                            | --/CSC                         | Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.                           |
| Burrowing owl<br><i>Athene cunicularia</i>                    | --/CSC                         | Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.                                                  |

| Common Name<br>Scientific Name                                            | Listing Status<br>(USFWS/CDFG) | General Habitat Requirements                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Swainson's hawk<br><i>Buteo swainsoni</i>                                 | --/CT                          | Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations. |
| Yellow rail<br><i>Coturnicops noveboracensis</i>                          | --/CSC                         | Freshwater marshlands                                                                                                                                                                                                                                                          |
| White-tailed kite<br><i>Elanus leucurus</i>                               | --/CFP                         | Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.                                  |
| American peregrine falcon<br><i>Falco peregrinus anatum</i>               | --/CFP                         | Found near wetlands, lakes, rivers, or other water. Nests on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.                                                                                    |
| California least tern<br><i>Sternula antillarum browni</i>                | FE/CE                          | Coastal. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.                                                                                                                                              |
| <b>Fish</b>                                                               |                                |                                                                                                                                                                                                                                                                                |
| Coho salmon - central California coast ESU<br><i>Oncorhynchus kisutch</i> | FE/CE                          | Streams and rivers. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.                                                                                                                                   |
| Steelhead - central California coast DPS<br><i>Oncorhynchus mykiss</i>    | FT/--                          | Streams and rivers with cool, swift, shallow water, clean loose gravel for spawning, & suitably large pools in which to spend the summer.                                                                                                                                      |
| <b>Invertebrates</b>                                                      |                                |                                                                                                                                                                                                                                                                                |
| Obscure bumble bee<br><i>Bombus caliginosus</i>                           | --/--                          | Open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Food plant genera include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindelia</i> and <i>Phacelia</i> .         |
| Crotch bumble bee<br><i>Bombus crotchii</i>                               | --/--                          | Open grassland and scrub habitats. Nesting occurs underground. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .                                                             |
| Western bumble bee<br><i>Bombus occidentalis</i>                          | --/--                          | Open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Generalist forager on many plant species. Nests in underground cavities such as old rodent nests and in open west-southwest slopes bordered by trees.                             |

| Common Name<br><i>Scientific Name</i>                                   | Listing Status<br>(USFWS/CDFG) | General Habitat Requirements                                                                                                                                                                                                        |
|-------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Isopod<br><i>Calasellus californicus</i>                                | --/--                          | Freshwater wells and springs.                                                                                                                                                                                                       |
| Unsilvered fritillary<br><i>Speyeria adiaсте adiaсте</i>                | --/--                          | Limited to the higher elevations of the Santa Cruz Mountains. Inhabits openings in conifer and redwood forests, as well as oak woodlands, chaparral, and grassy slopes. Host plants are violets ( <i>Viola spp.</i> ).              |
| Zayante band-winged grasshopper<br><i>Trimerotropis infantilis</i>      | FE/--                          | Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem). Mostly on sand parkland habitat but also in areas with well-developed ground cover & in sparse chaparral with grass.                    |
| <b>Mammals</b>                                                          |                                |                                                                                                                                                                                                                                     |
| Townsend's big-eared bat<br><i>Corynorhinus townsendii</i>              | --/CSC                         | Found in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings in cavernous areas such as caves and barns.                                                                    |
| Santa Cruz kangaroo rat<br><i>Dipodomys venustus venustus</i>           | --/--                          | Silverleaf manzanita mixed chaparral in the Zayante Sand Hills ecosystem of the Santa Cruz Mountains. Needs soft, well-drained sand.                                                                                                |
| Hoary bat<br><i>Lasiurus cinereus</i>                                   | --/--                          | Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.                                   |
| Yuma myotis<br><i>Myotis yumanensis</i>                                 | --/--                          | Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.                               |
| San Francisco dusky-footed woodrat<br><i>Neotoma fuscipes annectens</i> | --/CSC                         | Forest habitats of moderate canopy & moderate to dense understory. May prefer chaparral & redwood habitats. Constructs nests of shredded grass, leaves & other material. May be limited by availability of nest-building materials. |
| <b>Reptiles</b>                                                         |                                |                                                                                                                                                                                                                                     |
| Northern California legless lizard<br><i>Anniella pulchra</i>           | --/CSC                         | Sandy or loose loamy soils under sparse vegetation in chaparral, coastal scrub, and coastal dunes. Soil moisture is essential. Prefer soils with a high moisture content.                                                           |

| Common Name<br><i>Scientific Name</i>                               | Listing Status<br>(USFWS/CDFG) | General Habitat Requirements                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Western pond turtle<br><i>Emys marmorata</i>                        | --/CSC                         | A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying. |
| San Francisco gartersnake<br><i>Thamnophis sirtalis tetrataenia</i> | FE/CE                          | Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.                                        |

**Status Codes:**

FE      Federally Endangered Species  
 FT      Federally Threatened Species

CE      California Endangered Species  
 CT      California Threatened Species  
 CFP     California Fully Protected Species  
 CSC     CDFG (California Department of Fish and Game) Species of Special Concern

**Table 2: Special Status Plants and Lichens Present or Potentially Present In Saratoga**

| Common Name<br><i>Scientific Name</i>                          | Listing Status<br>(USFWS/CDFG/CNPS) | General Habitat Requirements                                                                                          |
|----------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Plants</b>                                                  |                                     |                                                                                                                       |
| Bent-flowered fiddleneck<br><i>Amsinckia lunaris</i>           | --/--/1B.2                          | Cismontane woodland, valley and foothill grassland, and coastal bluff scrub. 3-795 m.                                 |
| Coast rockcress<br><i>Arabis blepharophylla</i>                | --/--/4.3                           | Rocky sites in broadleaved upland forest, coastal prairie, coastal scrub, and coastal bluff scrub. 3-1100 m.          |
| Anderson's manzanita<br><i>Arctostaphylos andersonii</i>       | --/--/1B.2                          | Open sites in broadleaved upland forest, chaparral, north coast coniferous forest, and redwood forest. 60-760 m.      |
| Kings Mountain manzanita<br><i>Arctostaphylos regismontana</i> | --/--/1B.2                          | Granitic or sandstone outcrops in broadleaved upland forest, chaparral, and north coast coniferous forest. 240-705 m. |
| Bonny Doon manzanita<br><i>Arctostaphylos silvicola</i>        | --/--/1B.2                          | Only known from Zayante (inland marine) sands in Santa Cruz County. 150-520 m.                                        |
| Brewer's calandrinia<br><i>Calandrinia breweri</i>             | --/--/4.2                           | Sandy or loamy soils in chaparral and coastal scrub. Disturbed sites, burns. 10-1200 m.                               |
| Congdon's tarplant<br><i>Centromadia parryi ssp. congdonii</i> | --/--/1B.1                          | Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 0-230 m.                      |

| Common Name<br><i>Scientific Name</i>                                           | Listing Status<br>(USFWS/CDFG/CNPS) | General Habitat Requirements                                                                                                            |
|---------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Ben Lomond spineflower<br><i>Chorizanthe pungens</i> var.<br><i>hartwegiana</i> | FE/--/1B.1                          | Zayante coarse sands in maritime ponderosa pine sandhills. 105-475 m.                                                                   |
| Robust spineflower<br><i>Chorizanthe robusta</i> var. <i>robusta</i>            | FE/--/1B.1                          | Sandy terraces and bluffs or in loose sand within cismontane woodland, coastal dunes, coastal scrub, and chaparral. 9-245 m.            |
| Mt. Hamilton fountain thistle<br><i>Cirsium fontinale</i> var. <i>campylon</i>  | --/--/1B.2                          | In seasonal and perennial drainages on serpentine in cismontane woodland, chaparral, valley and foothill grassland. 75-890 m.           |
| Brewer's clarkia<br><i>Clarkia breweri</i>                                      | --/--/4.2                           | Often found on serpentine in chaparral, cismontane woodland, and coastal scrub. 215-1115 m.                                             |
| Lewis' clarkia<br><i>Clarkia lewisii</i>                                        | --/--/4.3                           | Coastal scrub, chaparral, cismontane woodland, broadleaved upland forest, and closed-cone coniferous forest. 30-610 m.                  |
| Santa Clara red ribbons<br><i>Clarkia concinna</i> ssp. <i>automixa</i>         | --/--/4.3                           | On slopes and near drainages in cismontane woodland and chaparral. 90-1500 m.                                                           |
| San Francisco collinsia<br><i>Collinsia multicolor</i>                          | --/--/1B.2                          | On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. In Closed-cone coniferous forest and coastal scrub. 10-275 m. |
| Clustered lady's-slipper<br><i>Cypripedium fasciculatum</i>                     | --/--/4.2                           | In serpentine seeps and on moist streambanks within coniferous forest. 100-2435 m.                                                      |
| Western leatherwood<br><i>Dirca occidentalis</i>                                | --/--/1B.2                          | On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 20-640 m.                                     |
| Santa Clara Valley dudleya<br><i>Dudleya abramsii</i> ssp. <i>setchellii</i>    | FE/--/1B.1                          | On rocky serpentine outcrops and on rocks within grassland or woodland. 60-455 m.                                                       |
| Fragrant fritillary<br><i>Fritillaria liliacea</i>                              | --/--/1B.2                          | Often on serpentine; various soils reported though usually on clay, in grassland. 3-400 m.                                              |
| Phlox-leaf serpentine bedstraw<br><i>Galium andrewsii</i> ssp. <i>gatense</i>   | --/--/4.2                           | Dry, rocky places in serpentine soil. Chaparral, cismontane woodland, and lower montane coniferous forest. 150-1450 m.                  |
| Loma Prieta hoita<br><i>Hoita strobilina</i>                                    | --/--/1B.1                          | Serpentine endemic. Mesic sites in chaparral, cismontane woodland, and riparian woodland. 60-975 m.                                     |
| Coast iris<br><i>Iris longipetala</i>                                           | --/--/4.2                           | Mesic sites, heavy soils. Found in coastal prairie, lower montane coniferous forest, meadows and seeps. 0-600 m.                        |

| Common Name<br><i>Scientific Name</i>                                                | Listing Status<br>(USFWS/CDFG/CNPS) | General Habitat Requirements                                                                                                                                                            |
|--------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Serpentine leptosiphon<br><i>Leptosiphon ambiguus</i>                                | --/--/4.2                           | Grassy areas on serpentine soil in cismontane woodland, coastal scrub, valley and foothill grassland (margin with chaparral). 120-1130 m.                                               |
| Woolly-headed lessingia<br><i>Lessingia hololeuca</i>                                | --/--/3                             | Clay, serpentine; roadsides, fields. Found in coastal scrub, lower montane coniferous forest, valley and foothill grassland, and broadleaved upland forest. 15-305 m.                   |
| Smooth lessingia<br><i>Lessingia micradenia</i> var.<br><i>glabrata</i>              | --/--/1B.2                          | Serpentine; often on roadsides. Chaparral, cismontane woodland, valley and foothill grassland. 90-490 m.                                                                                |
| Arcuate bush-mallow<br><i>Malacothamnus arcuatus</i>                                 | --/--/1B.2                          | Gravelly alluvium in chaparral and cismontane woodland. 1-735 m.                                                                                                                        |
| Hall's bush-mallow<br><i>Malacothamnus hallii</i>                                    | --/--/1B.2                          | Chaparral and coastal scrub. Some populations on serpentine. 10-735 m.                                                                                                                  |
| Woodland woollythreads<br><i>Monolopia gracilens</i>                                 | --/--/1B.2                          | Grassy sites with sandy to rocky soils within chaparral, grasslands, and woodlands. Often seen on serpentine after burns, but may have only weak affinity to serpentine. 120-975 m.     |
| White-rayed pentachaeta<br><i>Pentachaeta bellidiflora</i>                           | FE/CE/1B.1                          | Open dry rocky slopes and grassy areas in cismontane woodlands and grasslands. Often on soils derived from serpentine bedrock. 35-610 m.                                                |
| White-flowered rein orchid<br><i>Piperia candida</i>                                 | --/--/1B.2                          | North Coast coniferous forest, lower montane coniferous forest, and broadleaved upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m. |
| Hickman's popcornflower<br><i>Plagiobothrys chorisianus</i> var.<br><i>hickmanii</i> | --/--/4.2                           | Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps and vernal pools. 15-185 m.                                                                                 |
| Hairless popcornflower<br><i>Plagiobothrys glaber</i>                                | --/--/1A                            | Coastal salt marshes and alkaline meadows. 5-125 m.                                                                                                                                     |
| Metcalf Canyon jewelflower<br><i>Streptanthus albidus</i> ssp. <i>albidus</i>        | FE/--/1B.1                          | Relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds. 50-275 m.                                                                                    |
| Most beautiful jewelflower<br><i>Streptanthus albidus</i> ssp.<br><i>peramoenus</i>  | --/--/1B.2                          | Serpentine outcrops on ridges and slopes in chaparral, valley and foothill grassland, and cismontane woodland. 90-1040 m.                                                               |
| Santa Cruz clover<br><i>Trifolium buckwestiorum</i>                                  | --/--/1B.1                          | Moist grassland. Gravelly margins of Coastal prairie, broadleaved upland forest, and cismontane woodland. 30-805 m.                                                                     |

| Common Name<br><i>Scientific Name</i>                         | Listing Status<br>(USFWS/CDFG/CNPS) | General Habitat Requirements                                                                                                                            |
|---------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Saline clover<br><i>Trifolium hydrophilum</i>                 | --/--/1B.2                          | Marshes and swamps, valley and foothill grassland and vernal pools. Mesic, alkaline sites. 1-335 m.                                                     |
| Caper-fruit tropidocarpum<br><i>Tropidocarpum capparideum</i> | --/--/1B.1                          | Alkaline clay in valley and foothill grassland. 0-360 m.                                                                                                |
| <b>Lichens</b>                                                |                                     |                                                                                                                                                         |
| Methuselah's beard lichen<br><i>Usnea longissima</i>          | --/--/4.2                           | Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California. |

**Status Codes:**

FE Federally Endangered Species  
 FT Federally Threatened Species  
 CE California Endangered Species  
 CT California Threatened Species  
 CFP California Fully Protected Species  
 CSC CDFG Species of Special Concern

**CNPS (California Native Plant Society) Rankings:**

1A Presumed extirpated in California  
 1B Rare, threatened, or endangered in California and elsewhere  
 2A Presumed extirpated in California but common elsewhere  
 2B Rare, threatened, or endangered in California but common elsewhere  
 3 Review list (more information needed)  
 4 Watch list (limited distribution)  
 0.1 Seriously threatened in California  
 0.2 Moderately threatened in California  
 0.3 Not very threatened in California

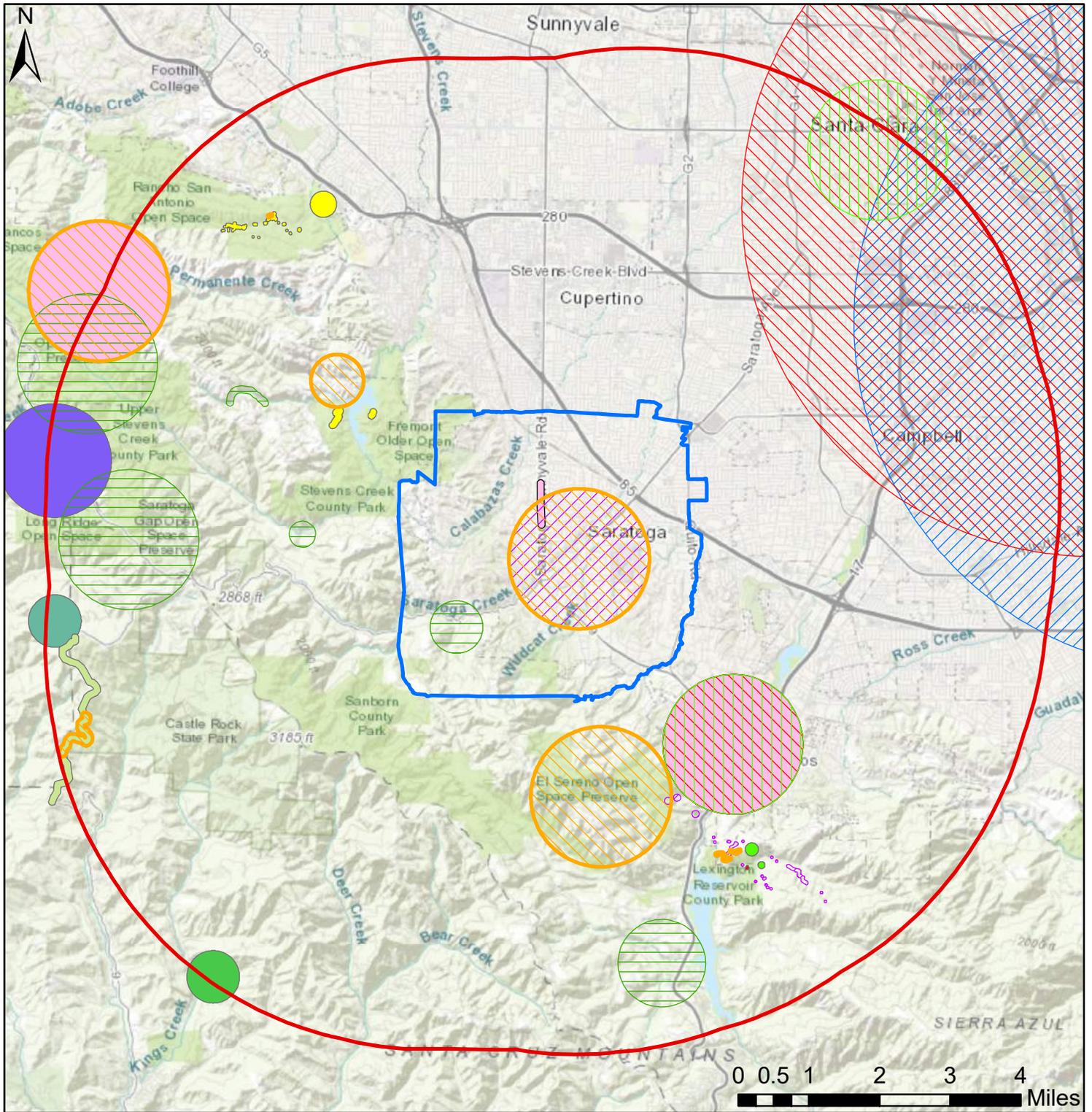


Figure 1: Special Status Plant Occurrences in Vicinity of Saratoga Planning Area

Source: CNDDDB

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

| Legend                               |                            |
|--------------------------------------|----------------------------|
| City of Saratoga Sphere of Influence | Loma Prieta hoita          |
| 5 Mile Radius                        | Methuselah's beard lichen  |
| Anderson's manzanita                 | Most beautiful jewelflower |
| Arcuate bush-mallow                  | Robust spineflower         |
| Bent-flowered fiddleneck             | Santa Clara red ribbons    |
| Congdon's tarplant                   | Santa Cruz clover          |
| Hairless popcornflower               | Western leatherwood        |
| Kings Mountain manzanita             | Woodland woollythreads     |



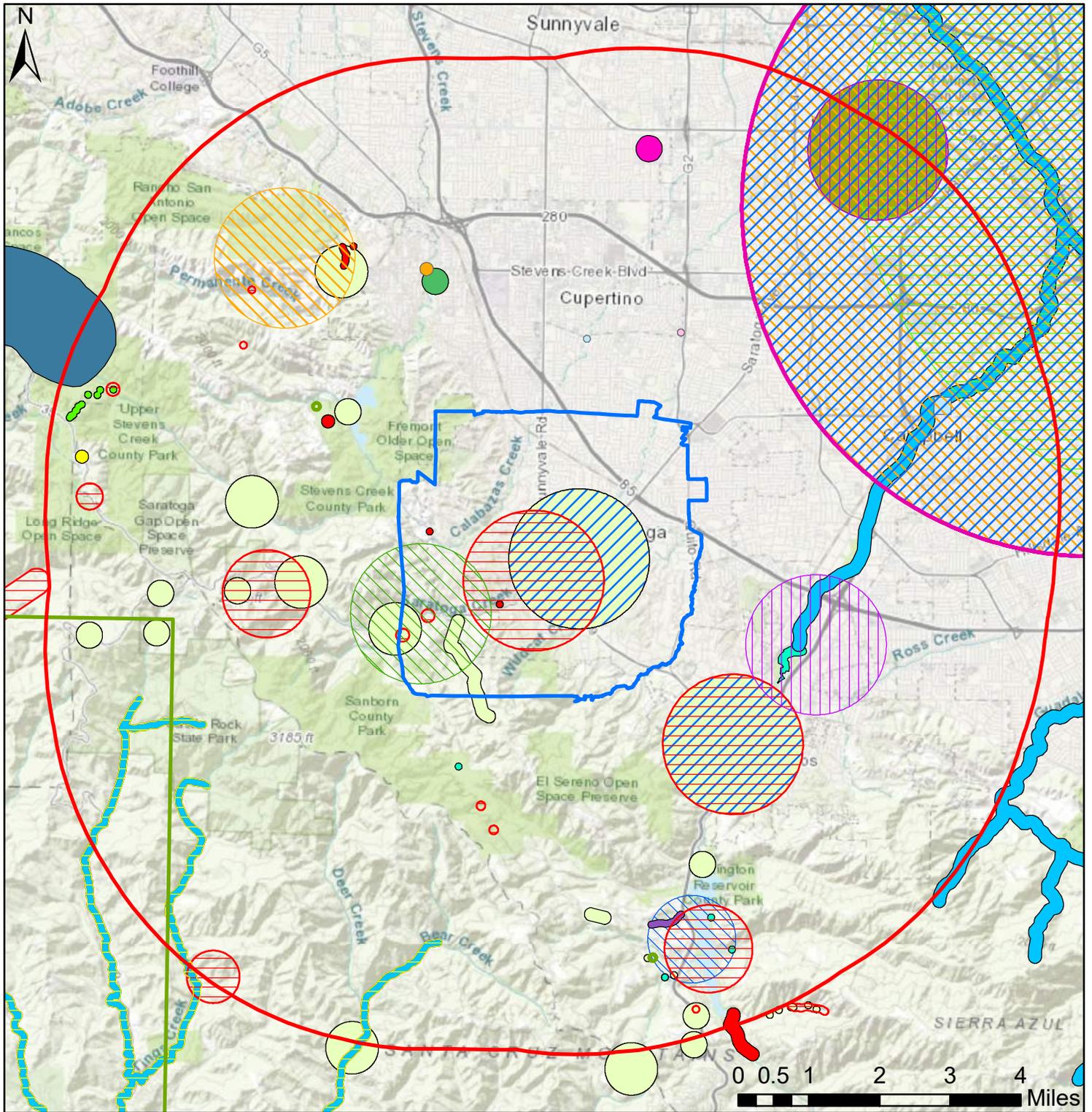


Figure 2: Special Status Wildlife Occurrences in Vicinity of Saratoga Planning Area

Source: CNDDDB

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

| Legend |                                      |  |                                           |  |                                 |
|--------|--------------------------------------|--|-------------------------------------------|--|---------------------------------|
|        | City of Saratoga Sphere of Influence |  | Isopod ( <i>Calasellus californicus</i> ) |  | Townsend's big-eared bat        |
|        | 5 Mile Radius                        |  | Long-eared owl                            |  | Unsilvered fritillary           |
|        | Burrowing owl                        |  | Northern California legless lizard        |  | Western bumble bee              |
|        | California giant salamander          |  | Obscure bumble bee                        |  | Western pond turtle             |
|        | California red-legged frog           |  | Red-bellied newt                          |  | White-tailed kite               |
|        | California tiger salamander          |  | San Francisco dusky-footed woodrat        |  | Yellow rail                     |
|        | Coho salmon                          |  | Santa Cruz black salamander               |  | Yuma myotis                     |
|        | Cooper's hawk                        |  | Santa Cruz kangaroo rat                   |  | Zayante band-winged grasshopper |
|        | Crotch bumble bee                    |  | Steelhead                                 |  | Swainson's hawk                 |
|        | Hoary bat                            |  |                                           |  |                                 |



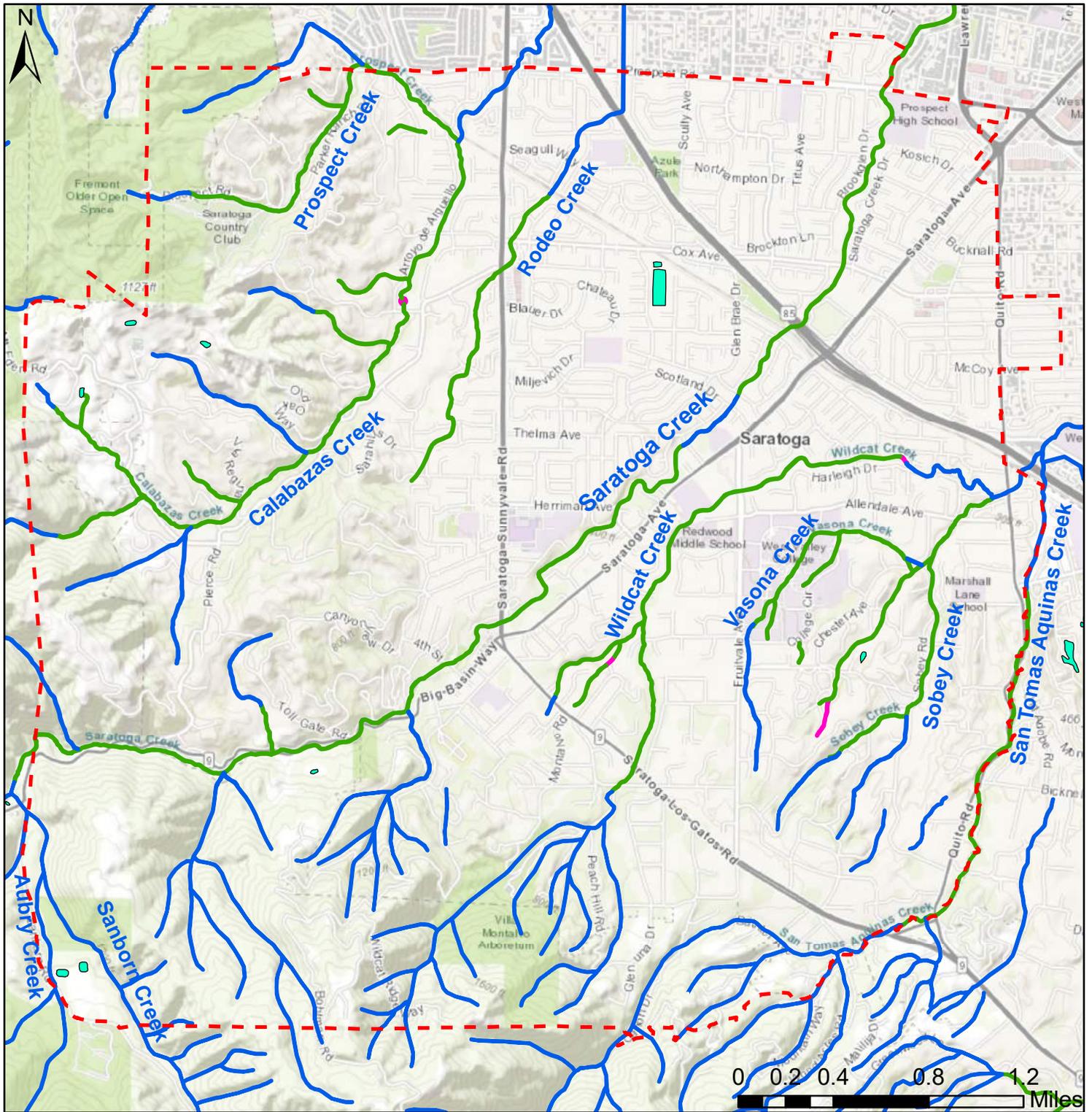


Figure 3: Wetlands and Waters of the US Within the Saratoga Planning Area

Source: USFWS National Wetlands Inventory

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

**Legend**

- City of Saratoga Sphere of Influence
- Wetlands**
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
- Waters of the US**
  - Freshwater Pond
  - Riverine



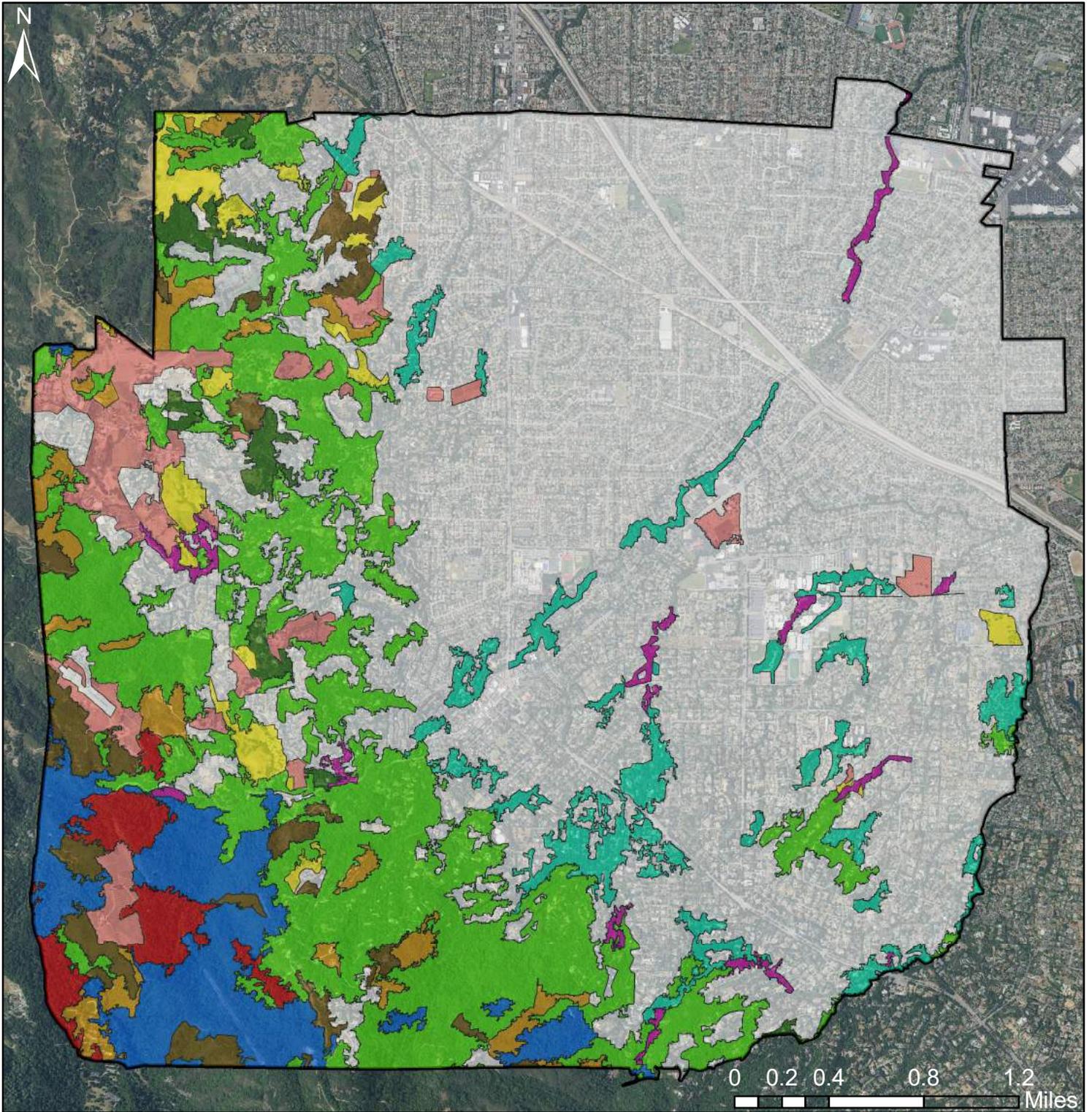
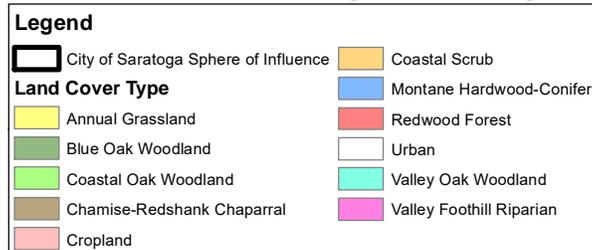


Figure 4: CDFW Cover Types Within the Saratoga Planning Area

Source: CALVEG, edited by CRE  
 Basemap: NAIP



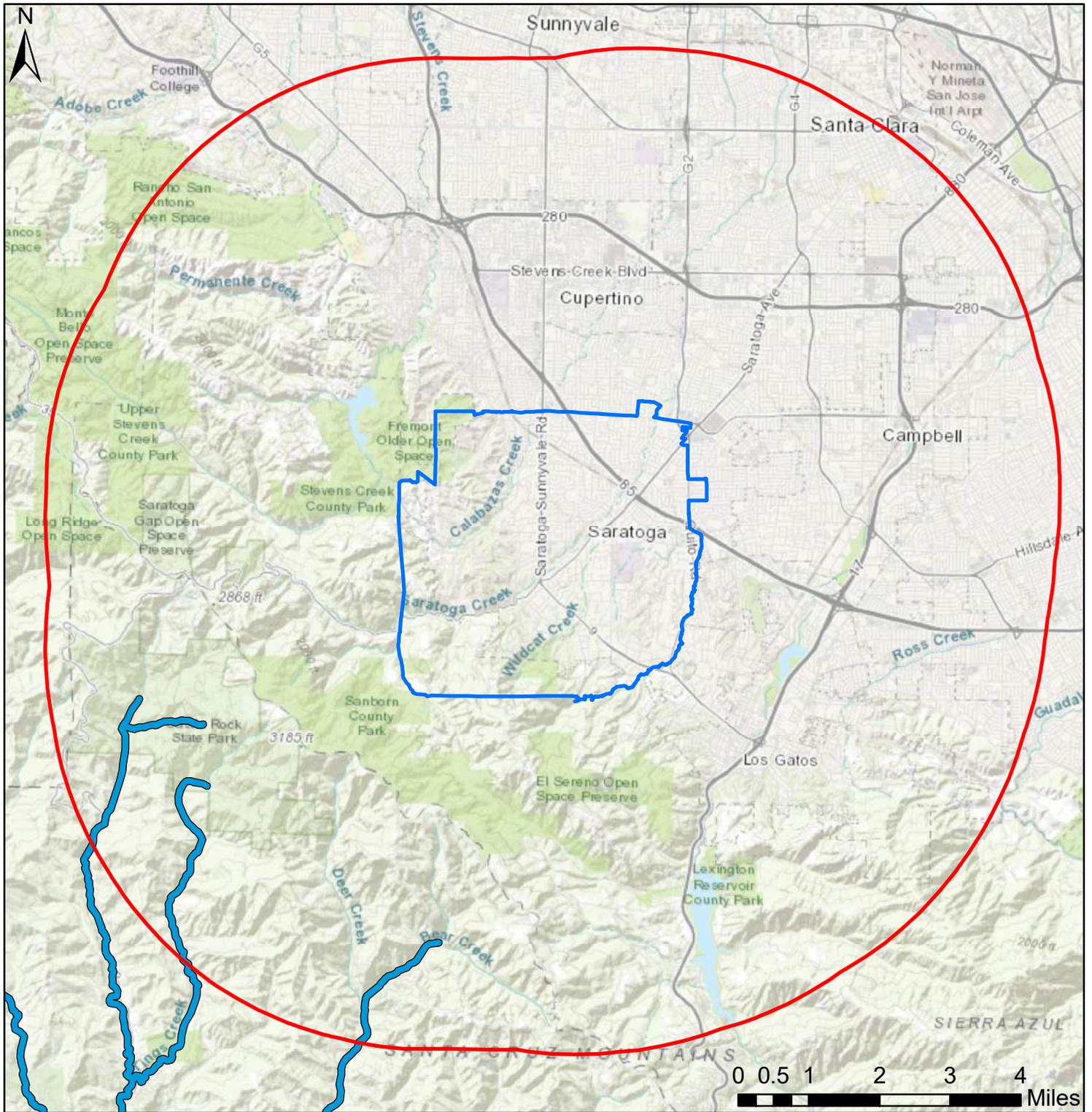


Figure 5: Sensitive Natural Communities

Source: CNDDDB

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, ©

**Legend**

- City of Saratoga Sphere of Influence
- 5 Mile Radius

**Sensitive Natural Communities**

- North Central Coast Drainage Sacramento Sucker/Roach River



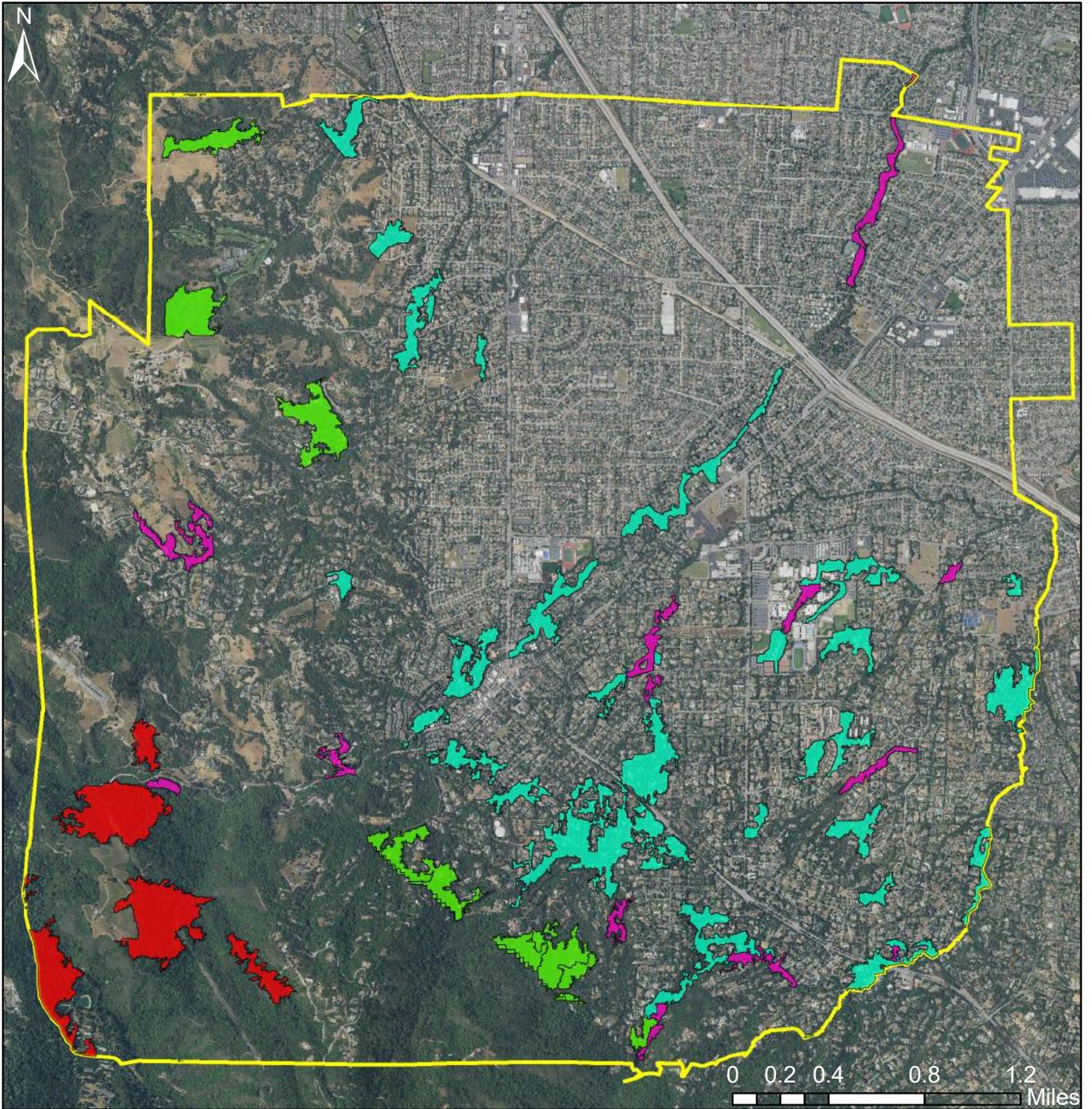


Figure 6: Sensitive Plant Communities Within the Saratoga Planning Area

Source: CALVEG, edited by CRE  
 Basemap: NAIP



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### Species lists:

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California Department of Fish and Wildlife. (2018). California Natural Diversity Database (CNDDB) – Government version dated July 1, 2018. Retrieved July 17, 2018 from <https://map.dfg.ca.gov/rarefind/view/RareFind.aspx>.

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APPENDIX C  
CULTURAL RESOURCES DOCUMENTATION



## **APPENDIX C-1. PREVIOUS CULTURAL RESOURCES STUDIES**

**Table C-1-1. Previous Studies within the City**

| <b>Report No. (S-)</b> | <b>Author(s)</b>                          | <b>Title</b>                                                                                                                                                                                                                                                 | <b>Year</b> |
|------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 000848                 | David A. Fredrickson                      | A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources                                                                          | 1976        |
| 003453                 | Roy Meadows, Roy Martin, and Ann Fisher   | Notes on the Carmel Indians (notes taken from Roy Meadows and Roy Martin on March 4th, 1950); and Southern Costanoan-Esselen Notes (notes taken from Ann Fisher on March 4th, 1950)                                                                          | 1950        |
| 004207                 | Stephen A. Dietz                          | An archaeological reconnaissance of those portions of the Campbell and Saratoga campuses of the West Valley Joint Community College District which will be part of the proposed relocation of the Campbell Campus' G-wing portable buildings (letter report) | 1975        |
| 004344                 | David Chavez                              | Archaeological Field Reconnaissance of the proposed Odd Fellows of Saratoga Retirement Community Construction Site (letter report)                                                                                                                           | 1976        |
| 004428                 |                                           | HUD Community Development Block Grant: Cultural Resources                                                                                                                                                                                                    | 1975        |
| 004501                 | David Chavez                              | An Archaeological Field Survey of the Boisseranc Property in Saratoga (letter report)                                                                                                                                                                        | 1978        |
| 004584                 | David Chavez                              | An Archaeological Reconnaissance of the Butler Property in Saratoga (letter report)                                                                                                                                                                          | 1978        |
| 004587                 | Miley Paul Holman                         | An archaeological reconnaissance of the proposed Paul Masson Chateau area development located in the Santa Cruz mountains west of the cities of Saratoga and Los Gatos in the County of Santa Clara (letter report)                                          | 1979        |
| 004608                 | Katherine Flynn and William Roop          | Archaeological Reconnaissance of the Parnas subdivision, Pierce and Congress Springs Roads, City of Saratoga (ARS 78-100)                                                                                                                                    | 1978        |
| 004678                 | Robert Cartier                            | Archaeological Evaluation of Parcel APN 391-3-272 & 391-3-282                                                                                                                                                                                                | 1979        |
| 004700                 | Miley Holman and David Chavez             | Archaeological Impact Evaluation of the Parker Ranch Property, Saratoga, California                                                                                                                                                                          | 1979        |
| 004707                 | Robert Cartier                            | Archaeological Evaluation of APN 517-23-20, Sunset Drive, Saratoga, CA.                                                                                                                                                                                      | 1979        |
| 004719                 | Stephen A. Dietz                          | Historic investigations concerning the Sorosis Ranch building located at 12760 Saratoga Avenue in Saratoga, California (letter report)                                                                                                                       | 1976        |
| 004719                 | Dan L. Peterson                           | 1903 Structure - Saratoga Road, Santa Clara, California (letter report)                                                                                                                                                                                      | 1976        |
| 004754                 | Thomas M. King and Linda King             | Visual Inventory of Historic and Archaeological Sites, San Jose, California                                                                                                                                                                                  | 1973        |
| 004820                 | Katherine Flynn                           | Mt. Eden-Chadwick properties, Saratoga - Archaeological and Historic Evaluation (ARS 78-101) (letter report)                                                                                                                                                 | 1979        |
| 004821                 | Katherine Flynn                           | Archaeological reconnaissance of the rights-of-way of the Saratoga Water Improvement Project (letter report)                                                                                                                                                 | 1979        |
| 005259                 | Ann Hines, Pauline Pace, and Gail Woolley | Santa Clara County Heritage Resource Inventory                                                                                                                                                                                                               | 1979        |
| 005260                 | Joseph C. Winter                          | Tamien - 6000 Years in an American City                                                                                                                                                                                                                      | 1978        |
| 005272                 | Jan Otto Marius Broek                     | The Santa Clara Valley, California: A Study in Landscape Changes                                                                                                                                                                                             | 1932        |
| 005309                 | Robert Cartier                            | Archeological Evaluation of the Arroyo Rinconada Development.                                                                                                                                                                                                | 1980        |
| 005329                 | Robert Cartier                            | Archeological Evaluation of the Proposed New Main Post Office, Fruitvale Avenue, Saratoga, CA                                                                                                                                                                | 1979        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                                                                                                                                 | <b>Title</b>                                                                                                                                                                                                     | <b>Year</b> |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 005991                 | Mara Melandry                                                                                                                                                    | Archaeological Survey Report for Orchard Removal at Selected Locations on 04-SCL-85 Post Miles 12.9, 13.2, 13.5/13.7; 04-SCL-87 Post Mile 3.7, 04402-911036, Cities of Saratoga and San Jose, Santa Clara County | 1981        |
| 006873                 | Robert Cartier                                                                                                                                                   | Cultural Resource Evaluation of the Fremont Union High School District Residential Subdivision Project on Prospect Avenue in the City of Saratoga, County of Santa Clara                                         | 1984        |
| 007458                 | Larry Bourdeau                                                                                                                                                   | Results of Archaeological Reconnaissance and Evaluation, SD-1595, Gypsy Hill Farm Subdivision Project, Sobey Road and Chester Avenue, City of Saratoga, Santa Clara County, California                           | 1985        |
| 007483                 | Albert B. Elsasser,<br>R. L. Anastasio, J.<br>C. Bard, C. I.<br>Busby, D. M.<br>Garaventa, S. A.<br>Guedon, E. L.<br>Moore, K. M.<br>Nissen, and M. E.<br>Tannam | Revised Data Recovery Plan, Part I: Review of the Prehistory of the Santa Clara Valley Region as Part of the Guadalupe Transportation Corridor Compliance with 36 CFR Part 800                                   | 1985        |
| 008403                 | Robert Cartier,<br>Charlene Detlefs,<br>and Glory Anne<br>Laffey                                                                                                 | Cupertino: Potential Cultural Resources, Ordinance, and Sensitivity Map                                                                                                                                          | 1980        |
| 008414                 | Robert Cartier and<br>Charlene Detlefs                                                                                                                           | Cultural Resource Assessment of the Seven Springs Ranch in the City of Cupertino, Santa Clara County                                                                                                             | 1981        |
| 008432                 | Robert Cartier                                                                                                                                                   | Cultural Resource Evaluation for Lands of John Dimantoin the County of Santa Clara, File #1284-23-54-80S                                                                                                         | 1980        |
| 008498                 | William Roop                                                                                                                                                     | Archaeological Reconnaissance of the Teerlink and De Martini properties, Saratoga, CA (letter report)                                                                                                            | 1978        |
| 008506                 | William Roop                                                                                                                                                     | Archaeological reconnaissance of proposed Park and Ride site, Saratoga Avenue at Southern Pacific Right-of-Way (letter report)                                                                                   | 1979        |
| 008585                 | Thomas King,<br>Gary Berg,<br>Patricia Hickman,<br>Richard Hastings,<br>Chester D. King,<br>Katherine Flynn,<br>and William Roop                                 | Archaeological Element, Environmental Impact Report on the San Felipe Water Distribution System                                                                                                                  | 1974        |
| 008974                 | Suzanne B.<br>Stewart                                                                                                                                            | Cultural Resources Study for the Quito Road Bridge Replacement Project, City of Saratoga, Santa Clara County, California                                                                                         | 1987        |
| 009462                 | Teresa Ann Miller                                                                                                                                                | Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties                                                                                                                   | 1977        |
| 009583                 | David W.<br>Mayfield                                                                                                                                             | Ecology of the Pre-Spanish San Francisco Bay Area                                                                                                                                                                | 1978        |
| 009911                 | William Roop                                                                                                                                                     | Archaeological evaluation of Parcel C of the Oddfellows property, Saratoga, Ca. (letter report)                                                                                                                  | 1988        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                                           | <b>Title</b>                                                                                                                                                                                                                | <b>Year</b> |
|------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 010395                 | Mark G. Hylkema                                                            | Archaeological Survey Report, proposed pavement rehabilitation on Route 9 from its junction with Route 17 in the City of Los Gatos to its junction with Route 85 in the City of Saratoga, 4-SCL-9 P.M.7.4/11.5 04273-124770 | 1988        |
| 012892                 | Michael Smith and Suzanne Baker                                            | Archaeological Reconnaissance of the Wong Subdivision (A.P.N. 503-15-2), Saratoga, California                                                                                                                               | 1991        |
| 013200                 | Donna M. Garaventa, Colin I. Busby, Sondra A. Jarvis, and David G. Brittin | Cultural Resources Assessment for the Santa Clara County Transportation Plan - T2010 EIR                                                                                                                                    | 1991        |
| 014097                 | Vicki Beard                                                                | An Archaeological Study for the Pierce Road Bridge Replacement Project (37C-293), City of Saratoga, Santa Clara County, California                                                                                          | 1992        |
| 014748                 | Robert Cartier, Edith Smith, and Julie C. Wizorek                          | Cultural Resource Evaluation of the Sister of Mercy Parcel, City of Saratoga                                                                                                                                                | 1992        |
| 014775                 | Eric Allison and Marilyn Illingworth                                       | An Archaeological Study of an Approximate 1,400 Feet Portion of Saratoga-Sunnyvale Road, Saratoga, Santa Clara County, California                                                                                           | 1993        |
| 015228                 | Donna M. Garaventa, Stuart A. Guedon, and Colin I. Busby                   | Cultural Resources Review for the City of San Jose 2020 General Plan Update, Santa Clara County, California                                                                                                                 | 1993        |
| 016394                 | Colin I. Busby, Donna M. Garaventa, Stuart A. Guedon, and Melody E. Tannam | Recorded Archaeological Resources in Santa Clara County, California (Plotted on the BARCLAY 1993 LoCaide Atlas)                                                                                                             | 1994        |
| 016394                 | Colin I. Busby, Donna M. Garaventa, Stuart A. Guedon, and Melody E. Tannam | First Supplement, Recorded Archaeological Resources in Santa Clara County, California                                                                                                                                       | 1995        |
| 016394                 | Colin I. Busby, Donna M. Garaventa, Stuart A. Guedon, and Melody E. Tannam | Second Supplement, Recorded Archaeological Resources in Santa Clara County, California                                                                                                                                      | 1996        |
| 016394                 | Colin I. Busby, Donna M. Garaventa, Stuart A. Guedon, and Melody E. Tannam | Third Supplement, Recorded Archaeological Resources in Santa Clara County, California                                                                                                                                       | 1997        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                  | <b>Title</b>                                                                                                                                       | <b>Year</b> |
|------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 016730                 | Robert Cartier, Elena Reese, and Julie C. Wizorek | Cultural Resources Evaluation for the Summer Dams Project                                                                                          | 1994        |
| 016730                 | Robert Cartier, Elena Reese, and Julie C. Wizorek | Cultural Resource Evaluation Addendum for the Summer Dams Project                                                                                  | 1994        |
| 017852                 | Jacquelin Jensen Kehl and Linda Yamane            | Ethnohistoric Genealogy Study, Tasman Corridor Light Rail Project, Santa Clara County, California                                                  | 1995        |
| 018049                 | Miley Paul Holman                                 | Archaeological Field Inspection of the Kennedy Property, 13121 Saratoga Sunnyvale Road, Saratoga, Santa Clara County, California (letter report)   | 1994        |
| 018217                 | Glenn Gmoser                                      | Cultural Resource Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report                                         | 1996        |
| 018403                 | Robert Cartier, Lynne Eckert, and Jon Reddington  | Cultural Resource Evaluation of the Urgent Erosion Control Project for the Maintenance Program EIR                                                 | 1996        |
| 018894                 |                                                   | Review of the City of Campbell's Historic Resource Inventory: Windshield Survey and Assessment of Historic Resource Inventory Forms                | 1995        |
| 018897                 | Glory Anne Laffey                                 | Historical Overview and Context Statements for the City of Campbell                                                                                | 1996        |
| 018898                 | Glory Anne Laffey                                 | McClellan Ranch Park Needs Assessment Project, Historical Overview for Cupertino, California                                                       | 1996        |
| 019580                 | Miley Paul Holman                                 | Archaeological Field Inspection of the Spaich Property "La Paloma", Saratoga, Santa Clara County, California (letter report)                       | 1997        |
| 020162                 | Robert Cartier                                    | Cultural Resource Evaluation of the 14000 Alta Vista Avenue Project in the City of Saratoga, California                                            | 1997        |
| 020171                 | Robert Cartier                                    | Cultural Resource Evaluation of Approximately 28 Acres Located off Mount Eden Road in the City of Saratoga, California                             | 1998        |
| 020395                 | Donna L. Gillette                                 | PCNs of the Coast Ranges of California: Religious Expression or the Result of Quarrying?                                                           | 1998        |
| 020528                 | Barry A. Price                                    | Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-541-02, Saratoga, Santa Clara County, California (letter report)           | 1998        |
| 020529                 | Barry A. Price                                    | Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-542-02, Saratoga, Santa Clara County, California (letter report)           | 1998        |
| 020534                 | Barry A. Price                                    | Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-554-02, Saratoga, Santa Clara County, California (letter report)           | 1998        |
| 020535                 | Barry A. Price                                    | Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-555-03, Saratoga, Santa Clara County, California (letter report)           | 1998        |
| 020551                 | Barry A. Price                                    | Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-621-03, Saratoga, Santa Clara County, California (letter report)           | 1998        |
| 021082                 | Sunshine Psota                                    | Review of Historic Resources for Site SF-623-01, Highway 9 and Austin Way, Saratoga, Santa Clara County, California (50001 103/98) (letter report) | 1998        |
| 021703                 | Miley Paul Holman                                 | Archaeological Field Inspection of the Norte Dame De Namur Property, 14800 Bohlman Road, Saratoga, California (letter report)                      | 1998        |
| 021797                 | Robert Cartier                                    | Cultural Resource Evaluation of Lands at 22486 Mt. Eden Road in the County of Santa Clara, California                                              | 1999        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                                                                        | <b>Title</b>                                                                                                                                                                     | <b>Year</b> |
|------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 023195                 | Michael Newland and Sunshine Psota                                                                      | Site Description, Location and Photographs, SF-634-02, Joint Pole, 19699 Saratoga-Los Gatos Road, Saratoga, California VERTEX Project No. 2283                                   | 2000        |
| 023630                 | Mara Melandry, David B. Gardner, John W. Snyder, Gregory P. King, Robert L. Gross, and Margaret L. Buss | Historic Properties Survey Report, 04-SCL-85, P.M. 0.0/17.9, Construction of West Valley Transportation Corridor from Cupertino to San Jose, Santa Clara County, EA 04142-485000 | 1984        |
| 023630                 | Lawrence E. Weigel                                                                                      | Archaeological Survey Report for the Proposed Construction of Route 85/87 in Santa Clara County, 04-SCL-85, 0.0/17.9, 04142-485000                                               | 1984        |
| 023630                 |                                                                                                         | Historic Architectural Survey Report for Proposed SCL-85, Post Miles 0.0/17.9, 04134-485000                                                                                      | 1984        |
| 023630                 | Lawrence E. Weigel                                                                                      | Archaeological Survey Report for the Proposed Construction of Route 85/87 in Santa Clara County, 04-SCL-85, 0.0/17.9, 04142-485000                                               | 1984        |
| 023630                 | Knox Mellon                                                                                             | Request for Determination of Effect, Guadalupe Corridor Project (Historic)                                                                                                       | 1983        |
| 024100                 | Robert Cartier                                                                                          | Cultural Resources Evaluation of Lands at 22600 Mt. Eden Road (Santa Clara County File No. 5580-19-00G) in the County of Santa Clara                                             | 2000        |
| 024146                 | Robert Cartier                                                                                          | Cultural Resources Evaluation of 5.5 Acres of Land Located at 15475 Archibald Drive in the County of Santa Clara                                                                 | 2000        |
| 024395                 | Leslie A. G. Dill, Amber Engle Grady, and April Halberstadt                                             | Historical and Architectural Evaluation of the Single Family Residence Located at 14625 Fruitvale Avenue, Saratoga, California.                                                  | 2001        |
| 024731                 | Robert Cartier                                                                                          | Cultural Resource Evaluation for 22600 Mt. Eden Road in the County of Santa Clara, California                                                                                    | 2001        |
| 025170                 | Kara Oosterhous, April Halberstadt, and Leslie A. G. Dill                                               | Historical and Architectural Evaluation, 13089 Quito Road, Saratoga, CA                                                                                                          | 2002        |
| 026159                 | Robert R. Cartier                                                                                       | Cultural Resource Evaluation for 20440 Arbeleche Lane in the City of Saratoga, California                                                                                        | 2001        |
| 026340                 | Dayna R. Tinsley                                                                                        | Archaeological Monitoring of Santa Clara Valley Water District Stream Maintenance Projects, August - October 2002                                                                | 2003        |
| 026394                 | Carolyn Losee                                                                                           | Records Search for Cingular Site No. SF-920-01: Westmont High School (Letter Report)                                                                                             | 2002        |
| 026616                 | Lisa Pesnichak                                                                                          | A Cultural Resources Evaluation of the Lands of Stuckey, 22580 Prospect Road, Saratoga, Santa Clara County, California (APN 366-29-025).                                         | 2002        |
| 026926                 | Leslie A. G. Dill and April Halberstadt                                                                 | Historical and Architectural Evaluation of Two Parcels at 14524 Oak Street, Saratoga, Santa Clara County, California                                                             | 2003        |
| 027090                 | Robert Cartier                                                                                          | Cultural Resource Evaluation of 9.15 Acre Parcel on Orchard Meadow Drive in the County of Santa Clara                                                                            | 2003        |
| 027934                 | Chris Jensen                                                                                            | A prefabricated shelter and panel antennas mounted on the roof of an existing building, Saratoga/CA-2401K, 14407 Big Basin, Saratoga, CA.                                        | 2004        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                         | <b>Title</b>                                                                                                                                                                                                         | <b>Year</b> |
|------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 029284                 | Scott Billat                                             | Proposed monopine and new equipment shelter, North Hwy 85/ CA-2146G, 19550 Prospect Road, Saratoga, CA.                                                                                                              | 2004        |
| 029307                 | Neal Kaptain                                             | Archaeological Assessment, Metro PCS Project No. SF07100B, Saratoga, Santa Clara County, California.                                                                                                                 | 2004        |
| 029307                 | Kate Shantry                                             | Cultural Resources Monitoring of Metro PCS SF07100B Telecommunications Site, Saratoga, Santa Clara County, California (LSA Project No. MEP430) (letter report)                                                       | 2005        |
| 029682                 | Pacific Legacy, Inc.                                     | Archaeological Monitoring Report for the 2004 Santa Clara Valley Stream Maintenance Project.                                                                                                                         | 2004        |
| 029695                 | Historic Resource Associates                             | Cultural Resources Study of the Bucknall and Quito Road Project, AT&T Wireless Services Site No. SNFCCA2128D, 1777 Saratoga Road, Saratoga, Santa Clara County, California 95070.                                    | 2005        |
| 030204                 | Donna L. Gillette                                        | The Distribution and Antiquity of the California Pecked Curvilinear Nucleated (PCN) Rock Art Tradition.                                                                                                              | 2003        |
| 030604                 | Colin I. Busby                                           | Archaeological Records Search and Limited Literature Review, Westgate Church IS Project, Saratoga and San Jose, Santa Clara County, DDA Project #2439 (letter report)                                                | 2004        |
| 030868                 | Andrew Pulcheon                                          | Cultural and Paleontological Resources Study for the De Anza/PG&E Trail Project, Saratoga, Santa Clara County, California (LSA #DSW430) (letter report)                                                              | 2004        |
| 030906                 | Christopher McMorris                                     | Caltrans Historic Bridge Inventory Update: Concrete Arch Bridges, Contract: 43A0089, Task Order: 01, EA: 43-984433, Volume I: Report and Figures                                                                     | 2004        |
| 031464                 | Robert R. Cartier                                        | Cultural Resource Evaluation of 21450 Arrowhead Lane in the County of Santa Clara                                                                                                                                    | 2004        |
| 031704                 | Bonnie Montgomery, Charlene Duval, and Leslie A. G. Dill | Historical and Architectural Evaluation of two parcels (APNs 403-24-001 and 403-24-008) at 13686 and 14110 Quito Road, Saratoga, California (Santa Clara County)                                                     | 2004        |
| 031704                 | Miley Paul Holman                                        | Archaeological Field Inspection of the 13686 Quito Road Project, Saratoga, Santa Clara County, California (letter report)                                                                                            | 2005        |
| 032596                 | Randall Milliken, Jerome King, and Patricia Mikkelsen    | The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways | 2006        |
| 032616                 | Lorna Billat                                             | Collocation ("CO") Submission Packet, FCC Form 621, T-Mobile Prince of Peace Lutheran Church, SF-19200A                                                                                                              | 2006        |
| 033056                 | Kate Shantry                                             | Historic Property and Archaeological Survey Report for the Saratoga De Anza Trail Project, Saratoga, Santa Clara County, California                                                                                  | 2007        |
| 033056                 | Kate Shantry                                             | Archaeological Survey Report for the Saratoga de Anza Trail Project                                                                                                                                                  | 2007        |
| 033309                 | Dan Osanna                                               | Records Search Results for Sprint PCS Facility SF54XC429A (Cal Trans ROW) Saratoga, Santa Clara County, California (letter report)                                                                                   | 2001        |
| 033600                 | Jack Meyer and Jeff Rosenthal                            | Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4                                                                                                                                      | 2007        |
| 034099                 | Leigh A. Martin                                          | Archaeological Survey and Assessment of a 41-Acre Parcel Located on Norton Road at the intersection of Kittredge Road, Saratoga, Santa Clara County, California (letter report)                                      | 2007        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                             | <b>Title</b>                                                                                                                                                                                                                               | <b>Year</b> |
|------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 034099                 | Leslie A. G. Dill                                            | Historic Resource Impact Review of a Proposed New Residential Construction Project Upon Historic Villa Montalvo                                                                                                                            | 2007        |
| 034214                 | Basin Research Associates, Inc.                              | Final Report: Archaeological Collections Project for the Redevelopment Agency of the City of San Jose                                                                                                                                      | 1995        |
| 034775                 | Wayne H. Bonner and James M. Keasling                        | Cultural Resource Records Search Results for T-Mobile Facility Candidate SF24848 (JPA Saratoga-Lomita), 20548 Lomita Avenue, Saratoga, Santa Clara County, California (letter report)                                                      | 2007        |
| 034780                 | Wayne H. Bonner, James M. Keasling, and Kathleen A. Crawford | Cultural Resources Records Search and Site Visit Results for T-Mobile Facility Candidate SF14139 (Immanuel Lutheran Church), 14103 Saratoga Avenue, Saratoga, Santa Clara County, California (letter report)                               | 2008        |
| 034785                 | Wayne H. Bonner and James M. Keasling                        | Cultural Resource Records Search Results for T-Mobile Facility Candidate SF15001 (JPA Saratoga Horseshoe), Horseshoe Drive & Saratoga Los Gatos Road, Saratoga, Santa Clara County, California (letter report)                             | 2007        |
| 035845                 | Lorna Billat                                                 | New Tower ("NT") Submission Packet, FCC Form 620. Project Name: Immanuel Lutheran Church, Project Number: SF- 14139A                                                                                                                       | 2009        |
| 036766                 | Wayne Bonner, Sarah Williams, and Kathleen Crawford          | Cultural Resources Records Search and Site Visit for T-MOBILE WEST CORPORATION, a Delaware Corporation, Candidate SF14139C (St. Andrews Episcopal Church), 13601 Saratoga Avenue, Saratoga, Santa Clara County, California (letter report) | 2009        |
| 036766                 | Wayne Bonner and Kathleen Crawford                           | Direct APE Historic Architectural Assessment for T-Mobile West Corporation, a Delaware Corporation, Candidate SF14139C (St. Andrews Episcopal Church), 13601 Saratoga Avenue, Saratoga, Santa Clara County, California (letter report)     | 2010        |
| 036977                 | Maureen Zogg, Janet Pape, and Stephen Bryne                  | Archaeological Survey Report: Three Spot Safety Improvements on State Route 9 Near the City of Saratoga, Santa Clara County, California, 04-SCL-9 2.5/6.75 E.A. 04-2A4300                                                                  | 2009        |
| 037518                 | Carrie D. Wills                                              | Cultural Resources Records Search and Site Visit for T-Mobile West Corporation a Delaware Corporation Candidate SF24196-A (PG&E Pole Cap Quito Road), 14091 Quito Road, Saratoga, Santa Clara County, California.                          | 2010        |
| 038008                 | Carrie D. Wills                                              | Cultural Resources Records Search and Site Visit for T-Mobile West Corporation a Delaware Corporation Candidate SF15074-G (PGE Pole Cap Verde Vista), 13751 Saratoga-Sunnyvale Road, Saratoga, Santa Clara County, California.             | 2010        |
| 038011                 | David Cohen and Kathleen A. Crawford                         | Cultural Resources Records Search and Site Visit for T-Mobile West Corporation a Delaware Corporation Candidate SF14139-E (Saratoga Corporate Yard), 19700 Allendale Avenue, Saratoga, Santa Clara County, California.                     | 2011        |
| 038721                 | Lisa Holm                                                    | Archaeological Monitoring Report for 2010 Santa Clara Valley Water District Maintenance Projects                                                                                                                                           | 2010        |
| 039010                 | Colin I. Busby                                               | Archaeological Records Search, Highway 9 Corridor between Saratoga Avenue in Saratoga and Los Gatos Boulevard in Los Gatos, Santa Clara County (letter report)                                                                             | 2007        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                | <b>Title</b>                                                                                                                                                                                              | <b>Year</b> |
|------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 039347                 | Allen G. Pastron                | Limited Phase I Cultural Resources Evaluation for the Quito Basin Sanitary Sewer Rehabilitation Project in Santa Clara County, California (letter report)                                                 | 2010        |
| 040280                 | Sunshine Psota                  | Historic Property Survey Report, Quito Road Bridges over San Tomas Aquinos Creek, City of Saratoga                                                                                                        | 2012        |
| 040280                 | Ward Hill                       | Historic Resources Evaluation Report, Quito Road Bridge Replacement Project, City of Saratoga, Santa Clara County, Federal Project Number BRLS 5332(004)                                                  | 2011        |
| 040280                 | Sunshine Psota                  | ASR Short Form for Local Assistance Projects, BRLS-5332 (0004), Quito Road Bridges over San Tomas Aquinos Creek, City of Saratoga                                                                         | 2012        |
| 040562                 | Lorna Billat                    | Collocation Submission Packet; Hwy 9-Fruitvale, CNU3693, 19491 Saratoga-Los Gatos Road, Saratoga, Santa Clara County                                                                                      | 2013        |
| 043147                 | Allen Pastron                   | Limited Phase I Cultural Resources Evaluation for the Quito Basin Sanitary Sewer Rehabilitation Project in the City of Saratoga, Santa Clara County, CA                                                   | 2013        |
| 043147                 | Allen G. Pastron                | Updated Limited Phase I Cultural Resources Evaluation for the Quito Basin Sanitary Sewer Rehabilitation Project in the Town of Saratoga, Santa Clara County, California (letter report)                   | 2020        |
| 043191                 | Kathleen Kubal and Jay Rehor    | Historic Property Survey Report, State Route 85 Express Lanes Project, Santa Clara County, California, EA 4A7900, EFIS 0400001163, US 101 PM 23.1-28.6, SR 85 PM 0.0-24.1, US 101 PM 47.9-52.0            | 2013        |
| 043191                 | Kathleen Kubal                  | Archaeological Survey Report, State Route 85 Express Lanes Project, Santa Clara County, California: EA 4A7900; EFIS 0400001163, US 101 PM 23.1-28.6, SR 85 PM 0.0-24.1, US 101 PM 47.9-52.0               | 2013        |
| 043191                 | Jay Rehor and Kathleen Kubal    | Extended Phase I Study, State Route 85 Express Lanes Project, Santa Clara County, California: Project No. 0400001163; EA 4A7900, US 101 PM 23.1-28.6, SR 85 PM 0.0-24.1, US 101 PM 47.9-52.0              | 2013        |
| 043191                 | Kathleen Kubal                  | Environmentally Sensitive Area Action Plan, State Route 85 Express Lanes Project, Santa Clara County, California: EA 4A7900; EFIS 0400001163, US 101 PM 23.1-28.6, SR 85 PM 0.0-24.1, US 101 PM 47.9-52.0 | 2013        |
| 043991                 | Dana Supernowicz                | Architectural Evaluations Study of the West Valley College Report, AT&T Mobility Site No. SNFCCA0702, 14000 Fruitvale Avenue, Saratoga, Santa Clara County, California 95070                              | 2013        |
| 044027                 | Thomas M. King                  | Master List of Campbell Historic Survey 1977-1978                                                                                                                                                         | 1978        |
| 045440                 | Vicki R. Beard                  | A Cultural Resources Survey for the Quarry Park Master Plan, Saratoga, Santa Clara County, California                                                                                                     | 2013        |
| 046375                 | Archives and Architecture, LLC. | County of Santa Clara Historic Context Statement                                                                                                                                                          | 2012        |
| 046730                 | Andrew Pulcheon                 | Cultural Resources Study for the Saratoga Village Creek Trail Project, Santa Clara County, California (letter report)                                                                                     | 2015        |
| 048070                 | Sunshine Psota                  | Results of a Cultural Resources Literature Search and Survey of Pike Road Reservoir Tank Replacement, Saratoga, Santa Clara County (letter report)                                                        | 2016        |
| 048927                 | Donald Scott Crull              | The Economy and Archaeology of European-made Glass Beads and Manufactured Goods Used in First Contact Situations in Oregon, California and Washington                                                     | 1997        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                                                   | <b>Title</b>                                                                                                                                                                                                                | <b>Year</b> |
|------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 049114                 | Sunshine Psota                                                                     | Results of CEQA Cultural Resources Literature Search for the Brookwood Lane Subdivision Project in Saratoga, Santa Clara County, California                                                                                 | 2017        |
| 049311                 | Charles Bennett and Thomas Lindenmeyer                                             | Draft Environmental Impact Report - Sorosis Ranch                                                                                                                                                                           | 1976        |
| 049311                 | Dan L. Peterson                                                                    | 1930 Structure-Saratoga Road, Santa Clara, California (letter report)                                                                                                                                                       | 1976        |
| 049311                 | Stephen A. Dietz                                                                   | Historic Investigations Concerning the Sorosis Ranch Building located at 12760 Saratoga Avenue in Saratoga, California (letter report)                                                                                      | 1976        |
| 049780                 | Brian F. Byrd, Adrian R. Whitaker, Patricia J. Mikkelsen, and Jeffrey S. Rosenthal | San Francisco Bay-Delta Regional Context and Research Design for Native American Archaeological Resources, Caltrans District 4                                                                                              | 2017        |
| 049780                 | Julianne Polanco                                                                   | FHWA_2016_0615_001, Caltrans District 4 Archaeological Context                                                                                                                                                              | 2016        |
| 050330                 | Carlos Sanchez                                                                     | Saratoga Senior Center, 19655 Allendale Avenue, Saratoga, Santa Clara County, California, 95070 (letter report)                                                                                                             | 2016        |
| 050330                 | Julianne Polanco                                                                   | HUD_2016_0921_001, ADA Upgrades of 19655 Allendale Avenue, Saratoga                                                                                                                                                         | 2016        |
| 050547                 | Cher L. Peterson and Kathleen A. Crawford                                          | Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SF70131M (SF0131 PG&E Sea Gull Way), 12382 Saratoga Sunnyvale Road, Saratoga, Santa Clara County, California (letter report)      | 2016        |
| 050547                 | Kathleen A. Crawford                                                               | Direct APE Historic Architectural Assessment for T-Mobile West, LLC Candidate SF70131M (SF0131 PG&E Sea Gull Way), 12382 Saratoga Sunnyvale Road, Saratoga, Santa Clara County, California (letter report)                  | 2016        |
| 050547                 | Kathleen Crawford                                                                  | Collocation ("CO") Submission Packet, FCC Form 621, SF70131M (SF0131 PG&E Sea Gull Way), 12382 Saratoga Sunnyvale Road, Saratoga, CA 95070                                                                                  | 2016        |
| 050547                 | Julianne Polanco                                                                   | FCC_2016_0629_004, SF0131M (SF0131 PG&E Sea Gull Way), 12382 Saratoga Sunnyvale Road, Saratoga, Collocation                                                                                                                 | 2016        |
| 050615                 | Don C. Perez                                                                       | Archaeological Assessment for Prior Disturbance, Saratoga and Verde Vista/ EnSite 30891, 20455 Herriman Avenue, Saratoga, Santa Clara County, CA 95070, EBI Project Number: 6117001197, TCNS Number: 153814 (letter report) | 2017        |
| 050615                 | Andrea Fink and Tara Cubie                                                         | Collocation ("CO") Submission Packet, FCC Form 621, Saratoga and Verde Vista / EnSite 30891, 20455 Herriman Avenue, Saratoga, Santa Clara County, CA 95070                                                                  | 2017        |
| 050615                 | Julianne Polanco                                                                   | FCC_2017_0525_003, Saratoga and Verde Vista/ EnSite 30891, 20455 Herriman Ave., Santa Clara County, Collocation                                                                                                             | 2017        |
| 050630                 | Carolyn Losee                                                                      | Cultural Resources Investigation for AT&T CCL00492 "Hwy 85 – Quito" 13686 Quito Road, Saratoga, Santa Clara County, California 95070 (letter report)                                                                        | 2018        |
| 050630                 | Carolyn Losee and Holly D. Moore                                                   | Collocation ("CO") Submission Packet, FCC Form 621, AT&T CCL00492 "Hwy 85 - Quito", 13686 Quito Rd., Saratoga, CA 95070                                                                                                     | 2018        |
| 050630                 | Julianne Polanco                                                                   | AT&T CCL0492 "HWY 85-QUITO" 13686 Quito Road, Saratoga, Collocation ( FCC_2018_0402_005 )                                                                                                                                   | 2018        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                                        | <b>Title</b>                                                                                                                                                                                                                                                                                                                                                                    | <b>Year</b> |
|------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 050638                 | Carolyn Losee                                           | Cultural Resources Investigation for AT&T CCL0585 "Hwy 85 – Saratoga" 13000 Glen Brae Drive, Saratoga, Santa Clara County, California 95070 (Letter Report)                                                                                                                                                                                                                     | 2018        |
| 050638                 | Carolyn Losee and Holly D. Moore                        | Collocation ("CO") Submission Packet, FCC Form 621, AT&T CCL00585, 13000 Glen Brae Drive, Saratoga, California                                                                                                                                                                                                                                                                  | 2018        |
| 050638                 | Julianne Polanco                                        | FCC_2018_0507_011, AT&T CCL00585, 13000 Glen Brae Drive, Saratoga, Collocation                                                                                                                                                                                                                                                                                                  | 2018        |
| 050696                 | Carolyn Losée                                           | Cultural Resources Investigation for AT&T CCL03247 "Hwy 85 – Northampton Dr" Cox Avenue @ railroad tracks east of Garnett Ct, Saratoga, Santa Clara County, California ( Letter Report )                                                                                                                                                                                        | 2018        |
| 050696                 | Holly D. Moore and Carolyn Losee                        | Section 106 Review, Proposed AT&T Mobility LLC Telecommunications Site AT&T Mobility Services LLC, AT&T Site Number CCL03247/CNU3247, "HWY 85 - Northampton Dr", Cox Avenue at Railroad Tracks east of Garnett Court, Saratoga, California 95070, USGS Topo: CUPERTINO, T7S,R1 W,sec31                                                                                          | 2018        |
| 050696                 | Julianne Polanco                                        | "AT&T CNU3247/CCL03247, Cox Avenue@ Railroad Tracks East of Garnett Court,                                                                                                                                                                                                                                                                                                      | 2018        |
| 050872                 | Dana E. Supernowicz                                     | Saratoga, Collocation (FCC_2018_0425_002 )"                                                                                                                                                                                                                                                                                                                                     | 2017        |
| 050872                 | Dana E. Supernowicz and Holly D. Moore                  | Record Search Results for the West Valley College Project, 14000 Fruitvale Avenue, Saratoga, Santa Clara County, California                                                                                                                                                                                                                                                     | 2018        |
| 050872                 | Julianne Polanco                                        | Collocation ("CO") Submission Packet, FCC Form 621, AT&T CCL00702 - "West Valley College", 14000 Fruitvale Avenue, Saratoga, California                                                                                                                                                                                                                                         | 2018        |
| 052245                 | Stacey De Shazo                                         | FCC_2018_0201_003, AT&T CCL00702 - "West Valley College" 14000 Fruitvale Avenue, Saratoga, Collocation                                                                                                                                                                                                                                                                          | 2018        |
| 052855                 | Dana E. Supernowicz                                     | A Current Condition Assessment, Evaluation, And Secretary Of Interior's Standards Review For The 1869 John Henry House Located At 14630 Big Basin Way, Saratoga, Santa Clara County                                                                                                                                                                                             | 2018        |
| 052855                 | Megan Ricks Gomez, Jennifer Davis, and Dana Supernowicz | Archaeological Sensitivity Assessment, CRAN_RSFR_WSAR0_004, 13792 Pierce Road, Saratoga, Santa Clara County, California 95070, EBI Project No. 6118005420, TCNS No. 173585                                                                                                                                                                                                      | 2018        |
| 052855                 | Julianne Polanco                                        | Submission Packet, FCC Form 621, for proposed Collocation Project, 13792 Pierce Road, Saratoga, Santa Clara County, California, CRAN_RSFR_WSAR0_004 / 14248012/WSAR0_004, EBI Project Number: 6118005420                                                                                                                                                                        | 2018        |
| 053340                 | Jessica Neal and Mary Pfeiffer                          | [FCC_2018_0822_005] CRAN_RSFR_WSAR0_004/14248012/WSAR0_004, 13792 Pierce Road, Saratoga, Collocation                                                                                                                                                                                                                                                                            | 2018        |
| 053340                 | Jessica Neal and Mary Pfeiffer                          | Cultural Resources Review and Section 106 Compliance for the Crown Castle #643489 SF974 Prince of Peace site (12770 Saratoga Avenue (APN 386-14-011)), City of Saratoga, Santa Clara County, California: No historic properties located within the APE for Direct Effect and no adverse effect on historic properties within the APE for Indirect/Visual Effect (letter report) | 2018        |

| <b>Report No. (S-)</b> | <b>Author(s)</b>                               | <b>Title</b>                                                                                                                                                                                                                                                                                     | <b>Year</b> |
|------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 053340                 | Jessica Neal, Mary Pfeiffer, and Jeff Stephens | Crown Castle - SF974 Price of Peace / BU #827850 - Trileaf Project #643489, 12770 Saratoga Avenue, Saratoga, California 95070, Santa Clara County, Cupertino Quadrangle (USGS)                                                                                                                   | 2019        |
| 053340                 | Jessica Neal                                   | Cultural Resources Review for the Crown Castle #643489 SF974 Prince of Peace Project, 12770 Saratoga Avenue (APN 386-14-011), City of Saratoga, Santa Clara County, California: No Historic Properties Affected within the Area of Potential Effects for Direct or Visual Effect (letter report) | 2019        |
| 053340                 | Julianne Polanco                               | FCC Form 621, SF974 Prince of Peace, 12770 Saratoga Avenue, Saratoga, California, 95070                                                                                                                                                                                                          | 2019        |

**APPENDIX C-2. CULTURAL RESOURCES WITHIN THE CITY OF SARATOGA**

**Table C-2-1. Previous Recorded Sites in City of Saratoga**

| <b>Primary No. (P-43-)</b> | <b>Trinomial No. (CA-SCL-)</b> | <b>Resource Type</b>            | <b>Resource Description</b>                                                                                                                                                                                              | <b>Year Recorded</b> | <b>NRHP/CRHR Status</b>                                           |
|----------------------------|--------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------|
| 000082                     | 000065                         | Prehistoric Archaeological Site | Midden deposit with fire-affected rock, burials and rock features. Artifacts include manos, metates, mortars, pestles and charmstones.                                                                                   | 1973                 | Unevaluated                                                       |
| 000084                     | 000067                         | Prehistoric Archaeological Site | Midden deposit with Monterey chert, clam and mussel shells. Artifacts include flakes, obsidian projectile points, and cores.                                                                                             | 1973, 1984           | Unevaluated                                                       |
| 000231                     | 000221/H                       | Multi-Component Site            | Farr Ranch. Large scale homestead site with farming activity. Historic artifacts include coins, bottles, dishes, clothing, household wares, bricks, toys and tractor/auto parts. One fossilized prehistoric human femur. | 1976, 1980, 1984     | Unevaluated                                                       |
| 000373                     | 000367                         | Prehistoric Archaeological Site | One sandstone bedrock mortar.                                                                                                                                                                                            | 1978                 | Unevaluated                                                       |
| 000374                     | 000368H                        | Historic Archaeological Site    | Pacific Congress Springs Hotel remains. Concrete staircase, privy and stone walls.                                                                                                                                       | 1979, 1984, 2009     | Unevaluated                                                       |
| 000405                     | 000399H                        | Historic Built Environment      | Villa Montalvo, 14800 Villa Montalvo Road. Italian style villa. 1912-1914.                                                                                                                                               | 1977, 1979           | NR - Listed                                                       |
| 000428                     | 000425/H                       | Prehistoric Archaeological Site | Midden deposit with fire-affected rock, small amounts of lithics, and one bowl mortar.                                                                                                                                   | 1980                 | Unevaluated                                                       |
| 001458                     |                                | Historic Built Environment      | Peck House, 20331 Orchard Road. Single family residence, Colonial Revival style. 1931.                                                                                                                                   | 2002                 | Recommended Eligible for Saratoga local register                  |
| 001467                     |                                | Historic Built Environment      | Single family residence, 15095 Fruitvale Avenue. Classical Revival with Prairie style influences. 1906.                                                                                                                  | 2003                 | NR – Eligible under Criterion C<br>CR- Eligible under Criterion 3 |
| 001479                     |                                | Historic Built Environment      | 3 single family residences, 14524 Oak Street. Shingle Style influence. 1906.                                                                                                                                             | 2003                 | NR – Not Eligible<br>CR- Eligible under Criterion 3               |

| <b>Primary No. (P-43-)</b> | <b>Trinomial No. (CA-SCL-)</b> | <b>Resource Type</b>         | <b>Resource Description</b>                                                                                                                                                                      | <b>Year Recorded</b>   | <b>NRHP/CRHR Status</b>                             |
|----------------------------|--------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------|
| 001485                     |                                | Historic Built Environment   | Saso Herb Garden, Single Family Residence, 14625 Fruitvale Avenue. Craftsman Bungalow style. 1906-1910.                                                                                          | 2001                   | NR/CR – Not Eligible                                |
| 001500                     |                                | Historic Built Environment   | Single family residence, 20288 La Paloma Street. Mediterranean style. 1924.                                                                                                                      | 2003                   | NR – Not Eligible<br>CR- Eligible under Criterion 3 |
| 001798                     |                                | Historic Built Environment   | 2 single family residences, 13686 & 14110 Quito Road. Vernacular style. Approximately 1917.                                                                                                      | 2004                   | NR/CR – Not Eligible                                |
| 002350                     |                                | Historic Built Environment   | Seven Springs Ranch, 11801 Dorothy Anne Way. Adobe style. Pre-1906.                                                                                                                              | 2009                   | NR/CR – Recommended Eligible                        |
| 002371                     |                                | Historic Built Environment   | St. Andrews Episcopal Church, 13601 Saratoga Avenue. Modern style. 1958.                                                                                                                         | 2010                   | NR - Not Eligible<br>CR - Unevaluated               |
| 002394                     |                                | Historic Built Environment   | Hakone Gardens, 21000 Big Basin Way. Japanese Traditional, Landscape and Architectural style gardens and associated buildings. 1917.                                                             | 2009                   | NR – Eligible under Criteria A and C                |
| 002803                     |                                | Historic Built Environment   | Single family residence, 14391 Quito Road. Unknown architectural style. 1940.                                                                                                                    | 2011                   | NR/CR – Not Eligible                                |
| 002807                     |                                | Historic Built Environment   | Single family residence, 14521 Quito Road. Spanish Colonial Revival. 1949                                                                                                                        | 2011                   | NR/CR – Not Eligible                                |
| 003021                     |                                | Historic Built Environment   | John Henry House, single family residence, 14630 Big Basin Way. National Architectural style. 1869.                                                                                              | 1981, 1988, 2009, 2018 | NR – Unevaluated<br>CR – Not Eligible               |
| 003126                     |                                | Historic Built Environment   | West Valley College Theater/Fine Arts/Humanities Building, 14000 Fruitvale Avenue. Modernist/Brutalist style. 1967.                                                                              | 2013                   | NR - Not Eligible<br>CR - Unevaluated               |
| 003857                     |                                | Historic Archaeological Site | Saratoga Landmark. Located on the southeast corner of Highway 9 and Highway 85. Plaque placed by California Centennials Commission. Arch erected by Saratoga Citizens. Dedicated March 25, 1950. | 1949, 1959, 1979       | California Registered Historical Landmark           |

| <b>Primary No. (P-43-)</b> | <b>Trinomial No. (CA-SCL-)</b> | <b>Resource Type</b>       | <b>Resource Description</b>                                                                                                                  | <b>Year Recorded</b> | <b>NRHP/CRHR Status</b>               |
|----------------------------|--------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------|
| 003877                     |                                | Historic Built Environment | Frank Mitchell House, single family residence, 13089 Quito Road. Craftsman style. 1909                                                       | 2002                 | Unevaluated                           |
| 003945                     |                                | Historic Built Environment | PG&E Lattice Tower #17/81M -Montana Vista-Saratoga, 12382 Saratoga Sunnyvale Road. Steel lattice type tower with concrete footings. Pre-1948 | 2016                 | NR/CR – Not Eligible                  |
| 003946                     |                                | Historic Built Environment | Saratoga Presbyterian Church, 20455 Herriman Avenue. Modern style. 1965.                                                                     | 2017                 | NR - Not Eligible<br>CR - Unevaluated |

**APPENDIX C-3. CALIFORNIA BUILT ENVIRONMENT REOURCES  
DIRECTORY**

**Table C-3-1. California BERD**

| <b>Primary No.</b> | <b>Otis ID</b> | <b>Property No.</b> | <b>Name</b>                                       | <b>St. No</b> | <b>St. Name</b> | <b>City</b> | <b>Status Code</b>                          |
|--------------------|----------------|---------------------|---------------------------------------------------|---------------|-----------------|-------------|---------------------------------------------|
|                    | 656625         |                     | Wisteria Pavilion                                 | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656627         |                     | Upper Pavilion                                    | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656634         |                     | Lantern 6<br>Located In Zen Garden                | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656636         |                     | Ritual Garden Stone One,<br>Master Stone          | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656623         |                     | Well/Pump House                                   | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656624         |                     | Mon, Main Gate                                    | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656638         |                     | Ritual Garden Stone Three,<br>Stone Washing Basin | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656639         |                     | Carved Stone Of Fudo The Fire God                 | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656640         |                     | Carved Stone Jizo Bodhisattva                     | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656641         |                     | Metal Crane Sculpture                             | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656626         |                     | Moon Bridge                                       | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656628         |                     | Wisteria Arbor                                    | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656633         |                     | Misaki Lantern                                    | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |
|                    | 656635         |                     | Lantern 7<br>Located Near                         | 21000         | Big Basin Wy    | Saratoga    | 1D; Contributor to Hakone Historic District |

| Primary No. | Otis ID | Property No. | Name                                           | St. No | St. Name      | City     | Status Code                                  |
|-------------|---------|--------------|------------------------------------------------|--------|---------------|----------|----------------------------------------------|
|             |         |              | Main Gate Or Mon                               |        |               |          |                                              |
|             | 656637  |              | Ritual Garden Stone Two, Worshipping Stone     | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 656631  |              | Koi Pond Lantern 3                             | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 656632  |              | Kanju-Ji Lantern                               | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 656613  |              | Upper House                                    | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 656614  |              | Tea Waiting Pavilion                           | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 656629  |              | Koi Pond Lantern 1                             | 21000  | Big Basin Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 514118  | 116438       | Hakone Historic District                       | 21000  | Big Basin Wy  | Saratoga | 1S                                           |
|             | 514119  | 116439       | Caretaker's Cottage - Hakone Garden            | 21000  | Big Basin Wy  | Saratoga | 2D2; Contributor to Hakone Historic District |
|             | 656630  |              | Koi Pond Lantern 2                             | 21000  | Big Bason Wy  | Saratoga | 1D; Contributor to Hakone Historic District  |
|             | 544879  | 153150       | Hutton, Warner, House                          | 13777  | Fruitvale Ave | Saratoga | 1S                                           |
|             | 417352  | 14586        |                                                | 14800  | Montalvo Rd   | Saratoga | 1S                                           |
|             | 545063  | 153146       | Saratoga Village Library                       | 14410  | Oak St        | Saratoga | 1S                                           |
|             | 552372  | 146003       | Saratoga Foothill Club   Foothill Women's Club | 20399  | Park Pl       | Saratoga | 1S                                           |
|             | 545109  | 152967       | Saratoga Foothill Club Pergola                 | 20399  | Park Pl       | Saratoga | 1D                                           |

| <b>Primary No.</b> | <b>Otis ID</b> | <b>Property No.</b> | <b>Name</b>                                                    | <b>St. No</b> | <b>St. Name</b>           | <b>City</b> | <b>Status Code</b> |
|--------------------|----------------|---------------------|----------------------------------------------------------------|---------------|---------------------------|-------------|--------------------|
|                    | 417358         | 14592               | Masson, Paul,<br>Mountain<br>Winery                            |               | Pierce Rd                 | Saratoga    | 1S                 |
|                    | 488430         | 91245               | Judge James R.<br>Welch's<br>Redwood<br>Lodge (And<br>Grounds) |               | Sanborn Rd                | Saratoga    | 7P                 |
|                    | 417353         | 14587               | Welch-Hurst  <br>Judge J.R.<br>Welch Ranch  <br>Hurst Hous     | 15800         | Sanborn Rd                | Saratoga    | 1S                 |
|                    | 477219         | 77381               | Miller-Melone<br>Ranch   Miller<br>House                       | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1S                 |
|                    | 483223         | 85078               | Ranch House                                                    | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1D                 |
|                    | 483224         | 85079               | Garage                                                         | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1D                 |
|                    | 483226         | 85081               | Tankhouse                                                      | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1D                 |
|                    | 483227         | 85082               | Windmill                                                       | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1D                 |
|                    | 483229         | 85084               | Cast Iron<br>Lidded Fuel Oil<br>Container                      | 12795         | Saratoga-<br>Sunnyvale Rd | Saratoga    | 1D                 |
|                    | 507099         | 114970              | Bridge #37-74                                                  |               | Sr 9                      | Saratoga    | 2S2                |

**APPENDIX C-4. BUILDINGS ON SARATOGA LOCAL REGISTER**

## HERITAGE RESOURCE INVENTORY

| <u>Notes</u> | <u>Year<br/>App#</u> | <u>Address</u>                                                                   | <u>Resource, Historic and/or Common Name</u> | <u>Architectural Style</u>           | <u>Criteria</u>  | <u>DPR</u> | <u>Eval</u> |
|--------------|----------------------|----------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------|------------------|------------|-------------|
|              | 88-01                | 13361 Argonne Drive                                                              | Johnson-Kerr House (c. 1900)                 | Craftsman                            | a,c              |            | x           |
|              | 02-127               | Austin Way (Brick portion between Bountiful Acres Way and Robles Del-Oro) (1904) | Heritage Lane                                |                                      | a,b,c,d,e,f<br>g |            |             |
|              | 06-06                | 19908 Bella Vista                                                                | Blaney Carriage House (c. 1917)              | Early California                     | a,b,c,d          |            |             |
|              | 88-01                | 20021 Bella Vista                                                                | Rancho Bella Vista ( 1917)                   | Italian Villa                        | a,b,c,d          |            | x           |
|              | 88-01                | 14413-14415 Big Basin Way                                                        | Kerr Building/Hogg Building (1910)           | False-front                          | a,b,e            |            | x           |
| *            | 88-01<br>HP-18       | 14421 Big Basin Way                                                              | Saratoga Bank Building (1913)                | Classic Revival                      | a,c,e            |            | x           |
|              | 88-01                | 14495 Big Basin Way                                                              | Hutchinson Building (1884)                   | Pioneer                              | a,e              |            | x           |
|              | 88-01                | 14501-14503 Big Basin Way                                                        | Cloud-Smith Building (1884, 1896)            | Decorative Pioneer/<br>Neo Classical | a,b,e            |            | x           |
|              | 88-01                | 14510-14540 Big Basin Way                                                        | J.E. Foster House (c. 1882)                  | Pioneer Cottage                      | a,e              |            | x           |
|              | 88-01                | 14519 Big Basin Way                                                              | Green Store Building (c. 1890)               | False-front Pioneer                  | a,e              |            | x           |
|              | 88-01                | 14521 Big Basin Way                                                              | Grover House (c. 1895)                       | Pioneer Cottage                      | a,e              |            | x           |
|              | 88-01                | 14605 Big Basin Way                                                              | Pettis Livery (c. 1898)                      | Pioneer                              | a,c,e            |            | x           |
|              | 88-01                | 14605 Big Basin Way                                                              | Chrisholm-King House (c. 1875)               | Colonial/Salt Box                    | a,b,c,e          |            | x           |
|              | 88-01                | 14630 Big Basin Way                                                              | John Henry House (1869)                      | Pioneer Cottage                      | a,b,e            |            | x           |
|              | 88-01                | 14669 Big Basin Way                                                              | Fabretti House (1881)                        | Pioneer Cottage                      | a,e              |            | x           |

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| <u>Notes</u>                                                                                                                                                                                                                                                                                                                                                                                                 | <u>Year<br/>App#</u> | <u>Address</u>                                                       | <u>Resource, Historic and/or Common Name</u> | <u>Architectural Style</u> | <u>Criteria</u> | <u>DPR</u> | <u>Eval</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------|----------------------------------------------|----------------------------|-----------------|------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                              | 88-01                | 20900 Big Basin Way                                                  | Maclay Cottage (c. 1890)                     | Queen Anne                 | a,c             | x          |             |
| ###                                                                                                                                                                                                                                                                                                                                                                                                          | 88-01                | 21000 Big Basin Way                                                  | Hakone Gardens (1917-1918)                   | Japanese                   | a,c,d,e,g       | x          |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 88-01                | 20150 Bonnie Brae                                                    | James Richards House (c. 1910)               | Craftsman Bungalow         | a,b,c           | x          |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 88-01                | 20601 Brookwood Lane                                                 | F.B. Willard House (1916)                    | California Craftsman       | a,c             | x          |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 88-01                | 20611 Brookwood Lane                                                 | Henry Jarboe House (1858)                    | Pioneer                    | a               | x          |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 99-01                | 19050 Camino Barco                                                   | Colonel Barco House (1925)                   | Pioneer Farmhouse          | c,e             | x          |             |
| **                                                                                                                                                                                                                                                                                                                                                                                                           | 98-01                | 14288 Chester Avenue<br>(formerly 19101 Via Tesoro Court)            | Casa de Tesoro<br>(1935 & 1967)              | Adobe                      | b,c,e           | x          |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 91-01                | 19229 Citrus Lane<br>(see/formerly 19220 Saratoga-Los<br>Gatos Road) | Spinazze Ranch (c. 1890)                     | Craftsman Shingle          | c,f             | x          |             |
| **                                                                                                                                                                                                                                                                                                                                                                                                           | 88-01                | 19161 Cox Avenue                                                     | Joseph Cox House (1915)                      | Craftsman                  | a,b,c           | x          |             |
| 9-14-21                                                                                                                                                                                                                                                                                                                                                                                                      | HP21-<br>0006        | 19174 DeHavilland Drive                                              | Lee T. Boysel House                          | Eichler                    | a, b,c,d        | x          |             |
| 7-9-19                                                                                                                                                                                                                                                                                                                                                                                                       | HPC19<br>-0006       | 19461 DeHavilland Drive                                              | Eichler Entrance Planter                     | Eichler                    | a,b,e           |            |             |
| 7-9-19                                                                                                                                                                                                                                                                                                                                                                                                       | HPC19<br>-0005       | 19152 DeHavilland Drive                                              | Eichler Entrance Planter                     | Eichler                    | a,b,e           |            |             |
|                                                                                                                                                                                                                                                                                                                                                                                                              | 88-01                | 14445 Donna Lane                                                     | Webster-Sutro House (1916)                   | Dutch Colonial             | a,c             | x          |             |
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| <p><b>Historic Resources Inventory - (previous updates 6/88, 11/90, 7/91, 4/93, 4/98, 5/99, 3/00, 12/09, 5/13, 9/14, 12/16, 9/17, 10/17, 6/19, 12/19, 1/21, 6/22)</b></p>                                                                                                                                                                                                                                    |                      |                                                                      |                                              |                            |                 |            |             |
| <p>Page 2 of 11</p>                                                                                                                                                                                                                                                                                                                                                                                          |                      |                                                                      |                                              |                            |                 |            |             |

HERITAGE RESOURCE INVENTORY

| <u>Notes</u> | <u>Year<br/>App#</u> | <u>Address</u>                                            | <u>Resource, Historic and/or Common Name</u>   | <u>Architectural Style</u> | <u>Criteria</u> | <u>DPR</u> | <u>Eval</u> |
|--------------|----------------------|-----------------------------------------------------------|------------------------------------------------|----------------------------|-----------------|------------|-------------|
|              | 91-01                | 18111 Dorcich Ct.<br>(see/formerly 13089 Quito Road)      | Mitchell House (1909)                          | Craftsman                  | a,c,f,g         | x          |             |
|              | 11-11                | 14651 Farwell Avenue                                      | (Entry gate columns only)                      | n/a                        | e               |            |             |
| *            | 88-01<br>HP-3        | Fruitvale/Saratoga Ave.<br>(aka 13650 Saratoga Ave)       | Central Park Orchard                           | n/a                        | a,g             | x          |             |
| ###          | 88-01<br>HP-21       | 13777 Fruitvale Ave.<br>(see/moved from 13495 Sousa Lane) | Warner Hutton House (c. 1896)                  | Queen Anne                 | a,c             | x          |             |
|              | 88-01                | 14251 Fruitvale Ave.                                      | Novakovich Ranch (c. 1890)                     | Queen Anne                 | a,c,g           | x          |             |
|              | 88-01                | 14500 Fruitvale Ave.                                      | Odd Fellows Home (1912)                        | Mission Revival            | a,b,c,d         | x          |             |
|              | 88-01                | 14711 Fruitvale Ave.                                      | Ellis House (1885)                             | Folk Victorian             | a,e             | x          |             |
|              | 91-01                | 14901 Fruitvale Ave.                                      | Sunshine Williams Caretakers House (pre 1900)  | Pioneer Cottage            | a,b             | x          |             |
| **           | 88-01                | 15095 Fruitvale Ave.                                      | Fair Oaks (1905)                               | Prairie/Classic Revival    | a,b,c           | x          |             |
|              | 88-01                | 19490 Glen Una Dr.                                        | Carter House (1925)                            | Spanish Colonial           | a,c             | x          |             |
|              | 88-01                | 18888 Hayfield Ct.<br>(formerly 20235 La Paloma Ave)      | Hayfield House & Caretaker Cottage (1920-1921) | English Country            | a,c,d           | x          |             |
|              | 99-02                | 20201 Hill Avenue                                         | Frederick Wessels House (1926)                 | 1920's Eclectic            | c,e             | x          |             |
|              | 88-01                | 20252 Hill Avenue                                         | La Mirada - Hale Estate (1930)                 | Mediterranean              | a,b             | x          |             |
|              | 07-268               | 20230 La Paloma Ave                                       | Unnamed (1930's)                               | Bungalow                   | c,e             |            |             |

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HERITAGE RESOURCE INVENTORY

| <u>Notes</u> | <u>Year App#</u> | <u>Address</u>                                                     | <u>Resource, Historic and/or Common Name</u>   | <u>Architectural Style</u> | <u>Criteria</u> | <u>DPR</u> | <u>Eval</u> |
|--------------|------------------|--------------------------------------------------------------------|------------------------------------------------|----------------------------|-----------------|------------|-------------|
|              | 88-01            | 20235 La Paloma Ave<br>(see/address changed to 18888 Hayfield Ct.) | Hayfield House & Caretaker Cottage (1920-1921) | English Country            | a,c,d           | x          |             |
|              | 91-01            | 20250 La Paloma Av.                                                | Fontaine or Heid House (1924)                  | Tudor/Normandy             | b,e             | x          |             |
|              | 97-02            | 20271 La Paloma Av.                                                | None known (1916)                              | Craftsman                  | c,d             | x          |             |
|              | 88-01<br>HP-16   | 20600 Lomita Avenue                                                | Hannah McCarty House (c. 1890)                 | Pioneer/Greek Revival      | a,b,c           | x          |             |
|              | 2018<br>18-07    | 14200 Lutheria Way                                                 | Entrance Posts only                            | NA                         | a,b,c,e,g       |            | x           |
|              | 2018<br>18-08    | 14221 Lutheria Way                                                 | Entrance Posts only                            | NA                         | a,b,c,e,g       |            | x           |
|              | 91-01            | Madrone Hill Road<br>(APN: 517-38-001 & 002)                       | Madrone Hill - Scannavino House Site           | Mediterranean Gardens      | c,g             | x          |             |
|              | 91-01            | 20570 Marion Road                                                  | Stamper House (1892)                           | Pioneer Cottage            | a,c             | x          |             |
|              | 88-01            | 20731 Marion Road                                                  | Pollard House (c. 1892)                        | Queen Anne                 | a,b             | x          |             |
|              | 91-01            | 18500 Marshall Lane                                                | Belliciti Ranch (c. 1870)                      | Pioneer                    | a,c,e,f,g       | x          |             |
| 3-8-11       | 11-08            | 20200 Mendelsohn Lane                                              | Mendelson Lane House                           | Spanish Revival            | c               |            |             |
|              | 88-01            | 20271 Merrick Drive                                                | Rev. Pollard Ranch House (c. 1880)             | Pioneer                    | a,b             | x          |             |

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HERITAGE RESOURCE INVENTORY

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|----------|-------------|---------------------------------------------------------------|---------------------------------------------------------|-----------------------------|-------------|-----|------|
| *        | 88-01 HP-2  | 15400 Montalvo Road                                           | Villa Montalvo (1912)                                   | Italian Villa               | a,b,c,d     | X   |      |
|          | HP19-009    | 18485 Montpere Way                                            | N/A                                                     | Californian Modern          | a,b,c,d,f,g |     |      |
|          | 15-08       | 18500 Montpere Way                                            | Rainie Californian Modern (1954-1955)                   | Californian Modern          | a,c,d       | x   |      |
| 9-11-12  | 12-09       | 22621 Mount Eden Road                                         | Garrod Ranch Barn<br>Garrod Fruit Cutting Shed          | n/a                         | a, b<br>a,b |     |      |
| 09-09-14 | 14-09       | 14474 Oak Place                                               | Graham House (1929)                                     | Monterey-Craftsman Eclectic | a,d         |     |      |
| **       | 88-01 HP-23 | 14475 Oak Place                                               | Almond Hill (1910-1912)                                 | Shingle Craftsman           | a,b         | x   |      |
| ###      | 88-01 HP-9  | 14410 Oak Street                                              | Village Library (1927)                                  | Mission Revival             | a,b,c       | x   |      |
| *        | 88-01 HP-12 | 14434/14488 Oak Street<br>(see/moved to 14380 Saratoga-LG Rd) | Saratoga Volunteer Fire Bell (1903)<br>(Fire Bell Only) | n/a                         | a,b         | x   |      |
|          | 91-01       | 14524 Oak Street                                              | Hanchett House (c. 1886)                                | Pioneer Cottage             | c,e         | x   |      |
|          | 88-01       | 14534 Oak Street                                              | Lundblad's Lodge (1905)                                 | Craftsman Shingle           | a,c,e       | x   |      |
|          | 88-01       | 14592 Oak Street                                              | Saratoga Grammar School (1923-1924)                     | Spanish Colonial Revivial   | a,e,f       | x   |      |
|          | 88-01       | 14666 Oak Street                                              | Congregational Church Parsonage (c. 1886)               | Pioneer/Greek Revival       | a,b         | x   |      |
| *        | 88-01 HP-5  | 14672 Oak Street                                              | William King House (c. 1877)                            | Pioneer/Colonial Revival    | a,b         | x   |      |

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HERITAGE RESOURCE INVENTORY

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|--------|----------------|-------------------------------------------------------------|----------------------------------------|----------------------|-----------|-----|------|
| **     | 88-01<br>HP-13 | 14683 Oak Street                                            | Missionary Settlement House (c.1897)   | Queen Anne           | a,b,c,e   | x   |      |
|        | 88-01          | 14690 Oak Street                                            | Van Arsdale House (c. 1900)            | Queen Anne           | a,c       | x   |      |
|        | 91-01          | 14701 Oak Street                                            | Hainich House (c. 1900)                | Pioneer Cottage      | e,g       | x   |      |
|        | 91-01          | 14739 Oak Street                                            | Hayes House (c. 1906)                  | Pioneer Cottage      | e,g       | x   |      |
|        | 88-01          | 14766 Oak Street                                            | Madronia Cemetery (c. 1850)            | n/a                  | a,b,g     | x   |      |
| **     | 2019<br>19-03  | 20331 Orchard Road                                          | Peck House (c. 1930)                   | Colonial Revival     | b,c       | x   |      |
|        | 88-01          | 20390 Park Place                                            | Saratoga Federated Church (1923 w/add) | Mission Revival      | a,b,c,d,e | x   |      |
| 7-9-19 | HPC19<br>-0002 | 20390 Park Place                                            | Saratoga Federated Church (Bell)       | Iron Bell            | a,b       |     |      |
| *###   | 88-01<br>HP-1  | 20399 Park Place                                            | Saratoga Foothill Club (1915-1916)     | Bay Region/Craftsman | a,b,c,d,e | x   |      |
| **     | 88-01          | 15320 Peach Hill Road                                       | Carey House (1929)                     | Monterey Colonial    | a,c,d     | x   |      |
|        | 88-01          | 14754 Pierce Road                                           | Paul Masson Lodge (1936)               | French Chateau       | a,b,c     | x   |      |
| ###    |                |                                                             |                                        |                      |           |     |      |
|        | 91-01          | 13089 Quito Road<br>(address changed to 18111 Dorcich Ct. ) | Mitchell House (1909)                  | Craftsman            | a,c,f,g   | x   |      |
|        | 91-01          | 13939 Quito Road                                            | Brandenburg House (1890)               | Colonial Revival     | a,c       | x   |      |

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|--------------|------------------|--------------------------------------------------------------|--------------------------------------------------|----------------------------|-----------------|------------|-------------|
| *            | 88-01<br>HP-14   | 15231 Quito Road                                             | Casa Tierra (1941-1943)                          | Southwest                  | a,b,c           | x          |             |
| *            | 88-01<br>HP-15   | 18490 Ravenwood Dr.                                          | Brandenburg House (1888)                         | Decorative Pioneer         | a,c             | x          |             |
|              | HP-19            | Saratoga Avenue<br>(Fruitvale to 14300 & 14301 Saratoga Ave) | Heritage Lane                                    | n/a                        | a,e,f,g         | x          |             |
|              | 2018<br>18-06    | 13601 Saratoga Avenue                                        | Saint Andrews Episcopal Church<br>Sanctuary Only | Mid-Century Modern         | c,e             |            | x           |
| *            | 88-01<br>HP-3    | 13650 Saratoga Ave<br>(see Fruitvale/Saratoga Ave)           | Central Park Orchard                             | n/a                        | a,g             | x          |             |
|              | 91-01            | 13741 Saratoga Ave.                                          | Rowen House (c. 1903)                            | Craftsman                  | c,e,f           | x          |             |
| **           | 91-01            | 13855 Saratoga Ave.                                          | Lanphear House (c. 1910)                         | Craftsman                  | c,e             | x          |             |
|              | 88-01            | 13915 Saratoga Ave.                                          | McGrew-Atkinson House (1880)                     | Pioneer                    | a,c             | x          |             |
|              | 91-01            | 13935 Saratoga Ave.                                          | Great Lakes Nursery (c. 1904)                    | Bungalow                   | a,e             | x          |             |
|              | 88-01            | 13991 Saratoga Ave.                                          | Meason House (c. 1880's)                         | Pioneer                    | a,c             | x          |             |
| **           | 91-01<br>HP-20   | 14065 Saratoga Ave.                                          | Florence Cunningham House (c.1930)               | Craftsman Bungalow         | b,c,e           | x          |             |
|              | 88-01            | 14075 Saratoga Ave.                                          | E.M. Cunningham House (1882)                     | Decorative Pioneer         | a,b,c,e         | x          |             |
|              | 88-01            | 14189 Saratoga Ave.                                          | Thomy House (c. 1870)                            | Pioneer                    | a,c             | x          |             |
|              | 91-01            | 14199 Saratoga Ave.                                          | Four Pines House (c. 1890)                       | Pioneer Bungalow           | c,e             | x          |             |

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| <u>Notes</u> | <u>Year<br/>ADD#</u> | <u>Address</u>                                                          | <u>Resource, Historic and/or Common Name</u>         | <u>Architectural Style</u>        | <u>Criteria</u> | <u>DPR</u> | <u>Eval</u> |
|--------------|----------------------|-------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------|-----------------|------------|-------------|
|              | 88-01                | 14275 Saratoga Ave.                                                     | Higinbotham House (1920)                             | California Craftsman              | a,c             |            | x           |
|              | 88-01                | 14280 Saratoga Ave.                                                     | Luther Cunningham Stone House (1924-1926)            | Period Revival                    | a,b,c,e         |            | x           |
|              | 88-01                | 14300 Saratoga Ave.                                                     | Francis Dresser House (1870)                         | Neoclassic                        | a,c             |            | x           |
|              | 91-01                | 21060 Saratoga Hills Road                                               | Bonney-Abernathy House (c. 1913-1920)                | Craftsman                         | a,c             |            | x           |
|              | 88-01                | Saratoga-Los Gatos Rd./ Saratoga Ave.                                   | Memorial Arch (1919) and State Landmark Plaque #435  | Spanish Colonial Revival          | a,b,c,d,e       |            | x           |
| *            | 88-01<br>HP-12       | 14380 Saratoga-Los Gatos Rd (moved from 14434/14488 Oak Street in 2005) | Saratoga Volunteer Fire Bell (1903) (Fire Bell Only) | n/a                               | a,b             |            | x           |
|              | 91-01                | 19220 Saratoga-Los Gatos Road (address changed to 19229 Citrus Lane)    | Spinazze Ranch (c. 1890)                             | Craftsman Shingle                 | c,f             |            | x           |
|              | 88-01                | 19221 Saratoga-Los Gatos Road                                           | Tibbett House (1910)                                 | Craftsman Bungalow                | a,c             |            | x           |
|              | 91-01                | 20280 Saratoga-Los Gatos Road                                           | Seven Oaks House(c. 1920)                            | Mediterranean w/Craftsman details | c,e             |            | x           |
| **           | 88-01<br>HP-17       | 20330 Saratoga-Los Gatos Road                                           | Villa Deodara (1912)                                 | Mediterranean Villa               | a,c             |            | x           |
|              | 88-01                | 20360 Saratoga-Los Gatos Road                                           | Bellgrove/David C. Bell House (1904)                 | Spanish Colonial                  | a,c             |            | x           |
|              | 88-01                | 20375 Saratoga-Los Gatos Road                                           | Woodleigh/George A. Wood House (1911)                | Greek Revival                     | a,c,e           |            | x           |
|              | 88-01                | 20400 Saratoga-Los Gatos Road                                           | T.S. Montgomery Stone Wall (c. 1913)                 | n/a                               | a,b,d           |            | x           |
| *            | 88-01<br>HP-7        | 20450 Saratoga-Los Gatos Road                                           | Saratoga Historical Museum (c. 1904-1905)            | False-front Pioneer               | a,c,e           |            | x           |

\* Properties marked with a single asterisk are also Designated Historic Landmarks.

\*\* Properties marked with a double asterisk are also Designated Historic Landmarks and Mills Act Properties.

# Properties marked with a single hashtag are on the California Register of Historic Places

## Properties marked with a double hashtag are on the National Register of Historic Places

**Historic Resources Inventory - (previous updates 6/88, 11/90, 7/91, 4/93, 4/98, 5/99, 3/00, 12/09, 5/13, 9/14, 12/16, 9/17, 10/17, 6/19, 12/19, 1/21, 6/22)**

HERITAGE RESOURCE INVENTORY

| Notes         | Year App#      | Address                                                                | Resource, Historic and/or Common Name | Architectural Style       | Criteria | DPR | Eval |
|---------------|----------------|------------------------------------------------------------------------|---------------------------------------|---------------------------|----------|-----|------|
| *             | 88-01<br>HP-10 | 20460 Saratoga-Los Gatos Road                                          | McWilliams House (1850's)             | Pioneer Cottage           | a,c,e    | x   |      |
|               | 88-01          | 20490 Saratoga-Los Gatos Road                                          | Methodist-Episcopal Church (1896)     | Pioneer                   | a,b,e    | x   |      |
| ##            | 92-01          | 12795 Saratoga-Sunnyvale Road                                          | Miller House (1909-1911)              | Craftsman                 | a,c,f    | x   |      |
| **            | 88-01<br>HP-22 | 14051 Saratoga- Sunnyvale Road                                         | Neil Carmichael House (1914)          | Neoclassic                | a,b      | x   |      |
|               | 88-01          | 14421 Saratoga-Sunnyvale Road<br>(address changed to 18820 Terrace Ct) | B. Grant Taylor House (c. 1906-1907)  | California Craftsman      | a,b,c,d  | x   |      |
|               | 07-06          | 13685 Saratoga Vista Avenue                                            | Buettner House (1950)                 | Modern                    | c        |     |      |
| 9-11-12       | 12-09          | 13764 Saratoga Vista Avenue                                            | Tank House only (date unknown)        | n/a                       | a,c      |     |      |
| 7-9-19        | HPC19<br>-0007 | 19201 Shubert Drive                                                    | Eichler Entrance Planter              | Eichler                   | a,b,c    |     |      |
| **9-12-<br>17 | 17-04          | 19277 Shubert Drive                                                    | Kinji Masuda House                    | California Modern/Eichler | a,c,d    | x   |      |
|               | HPC19<br>-0008 | 19401 Shubert Drive                                                    | Eichler Entrance Planter              | Eichler                   | a,b,c    |     |      |
| *             | 88-01<br>HP-11 | 14650 Sixth Street                                                     | Nardie House (c. 1895)                | Queen Anne                | a,c      | x   |      |
| **#           | 88-01<br>HP-21 | 13495 Sousa Lane<br>(moved to 13777 Fruitvale Ave.)                    | Warner Hutton House (c. 1896)         | Queen Anne                | a,c      | x   |      |
|               | 88-01          | 18820 Terrace Ct (see/formerly 14421<br>Saratoga-Sunnyvale Road)       | B. Grant Taylor House (c. 1906-1907)  | California Craftsman      | a,b,c,d  | x   |      |

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HERITAGE RESOURCE INVENTORY

| <u>Notes</u> | <u>Year<br/>App#</u> | <u>Address</u>                                                       | <u>Resource, Historic and/or Common Name</u> | <u>Architectural Style</u>             | <u>Criteria</u> | <u>DPR</u> | <u>Eval</u> |
|--------------|----------------------|----------------------------------------------------------------------|----------------------------------------------|----------------------------------------|-----------------|------------|-------------|
|              | 88-01                | 20640 Third Street                                                   | Sam Cloud Hay & Feed Warehouse (c.1890)      | Pioneer                                | a,b,c,e         |            | x           |
|              | 88-01                | 12239 Titus Avenue                                                   | Andersen House (c. late 1880's)              | Pioneer                                | a,c             |            | x           |
| **           | 98-01                | 19101 Via Tesoro Court (see/address changed to 14288 Chester Avenue) | Casa de Tesoro (1935 & 1967)                 | Adobe                                  | b,c,e           |            | x           |
| **           | 88-01<br>HP-24       | 11995 Walbrook Dr.                                                   | Hyde House (1895)                            | Craftsman Bungalow                     | a,c             |            | x           |
|              | 91-01                | 21120 Wardell Road                                                   | Anna Bee House (c. 1902)                     | Traditional "Pyramid" or Princess Anne | c,e             |            | x           |
|              | 88-01                | 20770 Wildwood Way                                                   | Springer House (c. 1851)                     | Pioneer                                | a,b             |            | x           |
| 10-4-08      | 08-11                | 20365 Williams Avenue                                                | Williams Avenue House (1921)                 | Craftsman                              |                 |            |             |

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## HERITAGE RESOURCE INVENTORY

During the 2009 Inventory Update, it was determined that the following thirteen historic resources (including two Historic Sites) no longer exist. These resources were demolished for a number of reasons and have been removed from the Inventory. Documentation of the historical background of these sites is kept in the City's files.

|                                 |                          |       |
|---------------------------------|--------------------------|-------|
| 1. Cherrymount                  | 19474 Burgundy Way       | 88-01 |
| 2. Crowell House                | 19855 Douglass Lane      | 88-01 |
| 3. Reynolds Ranch               | 13616 Fruitvale Ave.     | 88-01 |
| 4. Saso Herb Gardens            | 14625 Fruitvale Ave.     | 91-01 |
| 5. Winslow House                | 20391 Park Place         | 97-01 |
| 6. Steme-Andres House           | 20105 Rancho Bella Vista | 88-01 |
| 7. José Moya Del Pino Mosaic    | 13150 Saratoga Ave.      | 91-01 |
| 8. Dr. Hogg Residence           | 14024 Saratoga Ave.      | 91-01 |
| 9. Professor Smith Residence    | 13850 Saratoga Ave.      | 91-01 |
| 10. J.C. Cunningham House       | 14120 Saratoga Ave.      | 88-01 |
| 11. Nelson Gardens              | 20851 Saratoga Hills     | 91-01 |
| 12. St. John's Episcopal Church | 14700 Sixth St.          | 88-01 |
| 13. Hayfield Garage             | 14315 Douglass Lane      | 88-01 |

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# Properties marked with a single hashtag are on the California Register of Historic Places

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**Historic Resources Inventory - (previous updates 6/88, 11/90, 7/91, 4/93, 4/98, 5/99, 3/00, 12/09, 5/13, 9/14, 12/16, 9/17, 10/17, 6/19, 12/19, 1/21, 6/22)**

## APPENDIX C-5. NATIVE AMERICAN CONSULTATION

## Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission  
1550 Harbor Blvd, Suite 100  
West Sacramento, CA 95691  
916-373-3710  
916-373-5471 – Fax  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

*Information Below is Required for a Sacred Lands File Search*

Project: Saratoga Housing Element Update Project

County: Santa Clara

USGS Quadrangle Name: Cupertino, San Jose West, Castle Rock Ridge and Los Gatos 7.5

Township: 7S Range: 1W Section(s): 29, 30, 31, 32

Township: 7S Range: 2W Section(s): 25, 26, 34, 35, 36

Township: 8S Range: 1W Section(s): 5, 6, 7, 8, 17, 18

Township: 8S Range: 2W Section(s): 1, 2, 3, 11, 12, 13

Company/Firm/Agency: Cogstone Resource Management

Street Address: 1518 W. Taft Ave.

City: Orange Zip: 92865

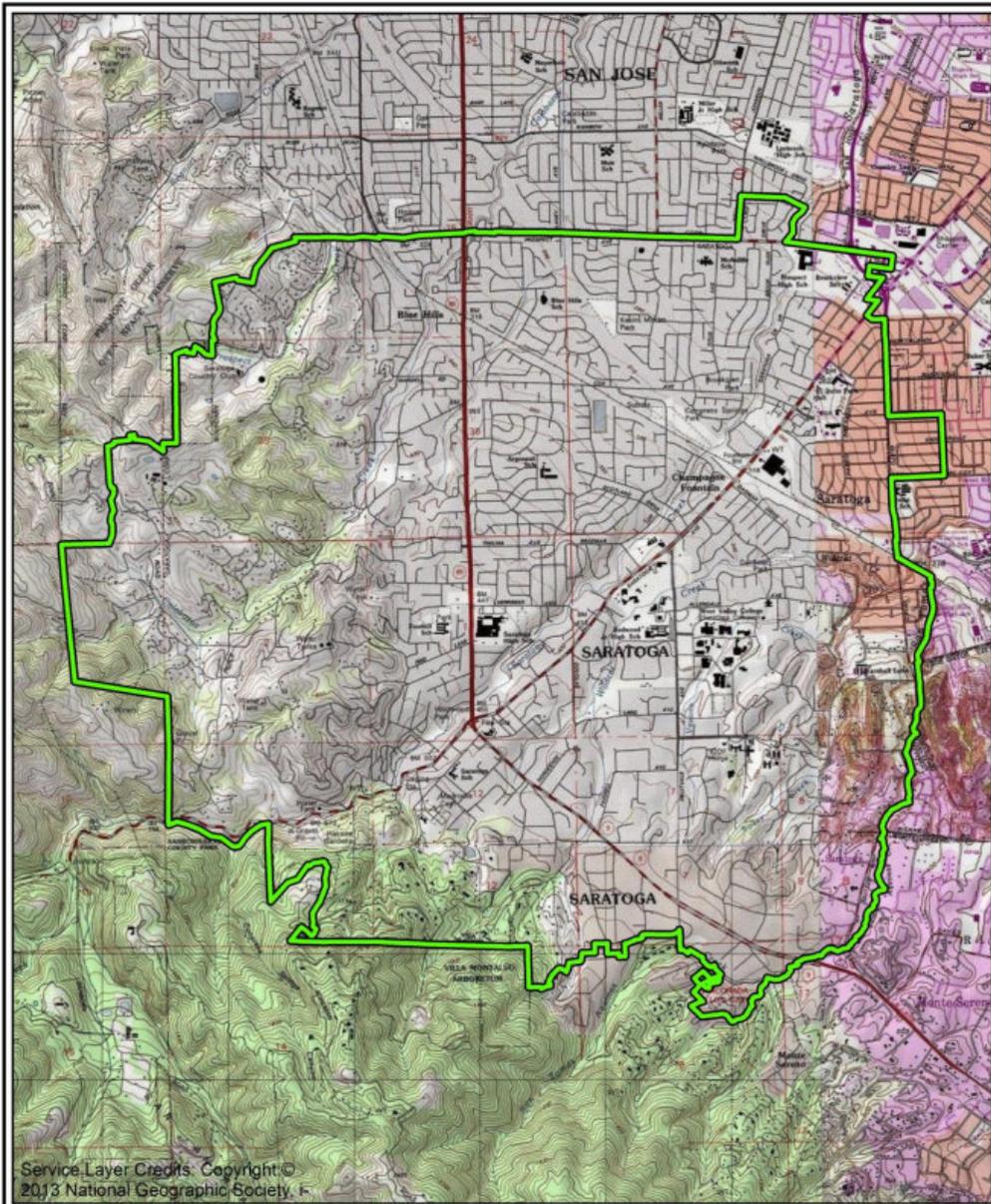
Phone: 714-974-8300

Fax: 714-974-8303

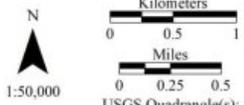
Email: cogstoneconsult@cogstone.com

### Project Description:

The City of Saratoga will prepare a Draft Program Environmental Impact Report for the proposed City of Saratoga 6th Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezonings. The Program EIR will address the environmental impacts associated with the adoption and implementation of the proposed project.



**Key**  
 Project Area



USGS Quadrangle(s):  
 Cupertino, San Jose West, Castle Rock Ridge and Los Gatos

**SARATOGA 6TH CYCLE HOUSING AND SAFETY  
 ELEMENTS UPDATES, 2040 GENERAL PLAN  
 UPDATE AND ASSOCIATED REZONINGS**

City of Saratoga,  
 Santa Clara County, CA  
  
PALEONTOLOGY - ARCHAEOLOGY - HISTORY



## NATIVE AMERICAN HERITAGE COMMISSION

July 5, 2022

Cogstone Resource Management

Via Email to: [cogstoneconsult@cogstone.com](mailto:cogstoneconsult@cogstone.com)

**Re: Native American Consultation, Pursuant to Senate Bill 18, Government Code §65352.3 and §65352.4, Saratoga Housing Element Update Project, Santa Clara County**

CHAIRPERSON  
**Laura Miranda**  
*Wiseño*

VICE CHAIRPERSON  
**Reginald Pagaling**  
*Chumash*

PARLIAMENTARIAN  
**Russell Attebery**  
*Karuk*

SECRETARY  
**Sara Dutschke**  
*Miwok*

COMMISSIONER  
**William Mungary**  
*Patute/White Mountain Apache*

COMMISSIONER  
**Isaac Bojorquez**  
*Chlane-Costanoan*

COMMISSIONER  
**Buffy McQuillen**  
*Yakaya Pomo, Yuki, Namiaki*

COMMISSIONER  
**Wayne Nelson**  
*Wiseño*

COMMISSIONER  
**Stanley Rodriguez**  
*Kumeyay*

EXECUTIVE SECRETARY  
**Raymond C. Hitchcock**  
*Miwok/Nisenan*

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)

Dear Cogstone Resource Management:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties.

Government Code § 65352.3 and § 65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

The law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

The NAHC also believes that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
  - A listing of any and all known cultural resources that have already been recorded or are adjacent to the APE, such as known archaeological sites;
  - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
  - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and
  - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
  
2. The results of any archaeological inventory survey that was conducted, including:
  - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code § 6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.
4. Any ethnographic studies conducted for any area including all or part of the APE; and
5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we are able to assure that our consultation list remains current.

If you have any questions or need additional information, please contact me at my email address: [Cody.Campagne@nahc.ca.gov](mailto:Cody.Campagne@nahc.ca.gov).

Sincerely,

*Cody Campagne*

Cody Campagne  
Cultural Resources Analyst

Attachment

July 19, 2022

[First Last]  
[Tribe]  
[Title/Role]  
[Address, Street]  
[City, CA, Zip]

RE: California Environmental Quality Act (CEQA) and State Bill (SB) 18 Consultation Request for the Saratoga Housing Element Update, City of Saratoga, Santa Clara County, California.

[TITLE & LAST NAME]:

The City of Saratoga (City) proposes to prepare a Draft Environmental Impact Report for their 6th Cycle Housing Element, Safety Element, 2040 General Plan and Associated Rezonings (Project). The EIR will address the environmental impacts associated with the adoption and implementation of the proposed Project. The City is located in northwestern Santa Clara County (see Figure 1). The City is bordered by San Jose to the north and northwest, Campbell to the east, Monte Sereno to the southeast, and the Fremont Older Open Space Preserve and unincorporated county lands to the west. The General Plan Planning Area is the geographic extent for the environmental analysis, composed of approximately 9,016 acres (approximately 7,201 acres within City limits and 1,815 acres within the City’s Sphere of Influence) (see Figure 2). This Project will comply with CEQA regulations and the cultural and paleontological assessment will be included in the EIR. The City will be the lead CEQA Agency. Cogstone Resource Management, Inc. (Cogstone) has been retained to assist the City with their cultural and paleontological resources assessment of the project area and help manage tribal consultation under CEQA and SB 18.

We are contacting you because the [TRIBE] requested to be notified and provided information, under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)), also known as AB 52, regarding projects with the City’s jurisdiction and within the traditional territory of the [TRIBE]. Please consider this letter and preliminary Project information as the formal notification of the proposed Project. The City is requesting to consult with the [TRIBE] in order to identify tribal cultural resources that may be impacted by the proposed Project. The point of contact for the City is below/on the next page.

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**City of Saratoga Point of Contact Information**

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|             |                                                 |
|-------------|-------------------------------------------------|
| Name/Title: | Debbie Pedro,<br>Community Development Director |
| Address:    | 13777 Fruitvale Avenue                          |
| City:       | Saratoga, CA 95070                              |
| Tel:        | 408) 868-1231                                   |
| Fax:        | 408) 867-8555                                   |
| E-Mail:     | dpedro@saratoga.ca.us                           |

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Additionally, the City is requesting consultation under Senate Bill 18 (Chapter 905, Statutes of 2004) which requires local governments to consult with tribes prior to making certain planning decisions and requires consultation and notice for a general and specific plan adoption or amendment in order to preserve, or mitigate impacts to, cultural places that may be affected. The Native American Heritage Commission (NAHC) provided us with a list of tribal entities and individuals who have requested to be placed on the SB 18 consultation list. The [TRIBE] is on the list provided. As a result, please consider this letter as a notice of the Project and an invitation to provide comments regarding the Project.

The Native American Heritage Commission (NAHC) was contacted on May 26, 2022 to perform a search of the Sacred Lands File. The NAHC responded on July 5, 2022 that the search was negative for Native American sacred sites and/or heritage resources located within the same USGS Quadrangle, Township, Range and Section as the Project Area.

Cogstone requested a record search of the Project area from the Northwest Information Center (NWIC) located at Sonoma State University on May 26, 2022. Results of the record search indicate that 173 previous studies have been completed and 24 cultural resources have been recorded within the Project area.

I would appreciate receiving any comments, issues and/or concerns relating to cultural resources, sacred lands, and tribal cultural resources that you may have within the Project area. All information provided will be kept confidential.

**Please respond within 30 days**, pursuant to PRC 21080.3.1(d), if you would like to consult on this Project. For consultation under SB 18, **you have 90 days to respond**. If you have any questions, please do not hesitate to contact Debbie Pedro at the Community Development Department at the address and email above or you can contact me by phone (714-974-8300), email (cogstoneconsult@cogstone.com), or fax (714-974-8303).

Thank you for your assistance.

John Gust

Attachments: Project vicinity map  
Project location map

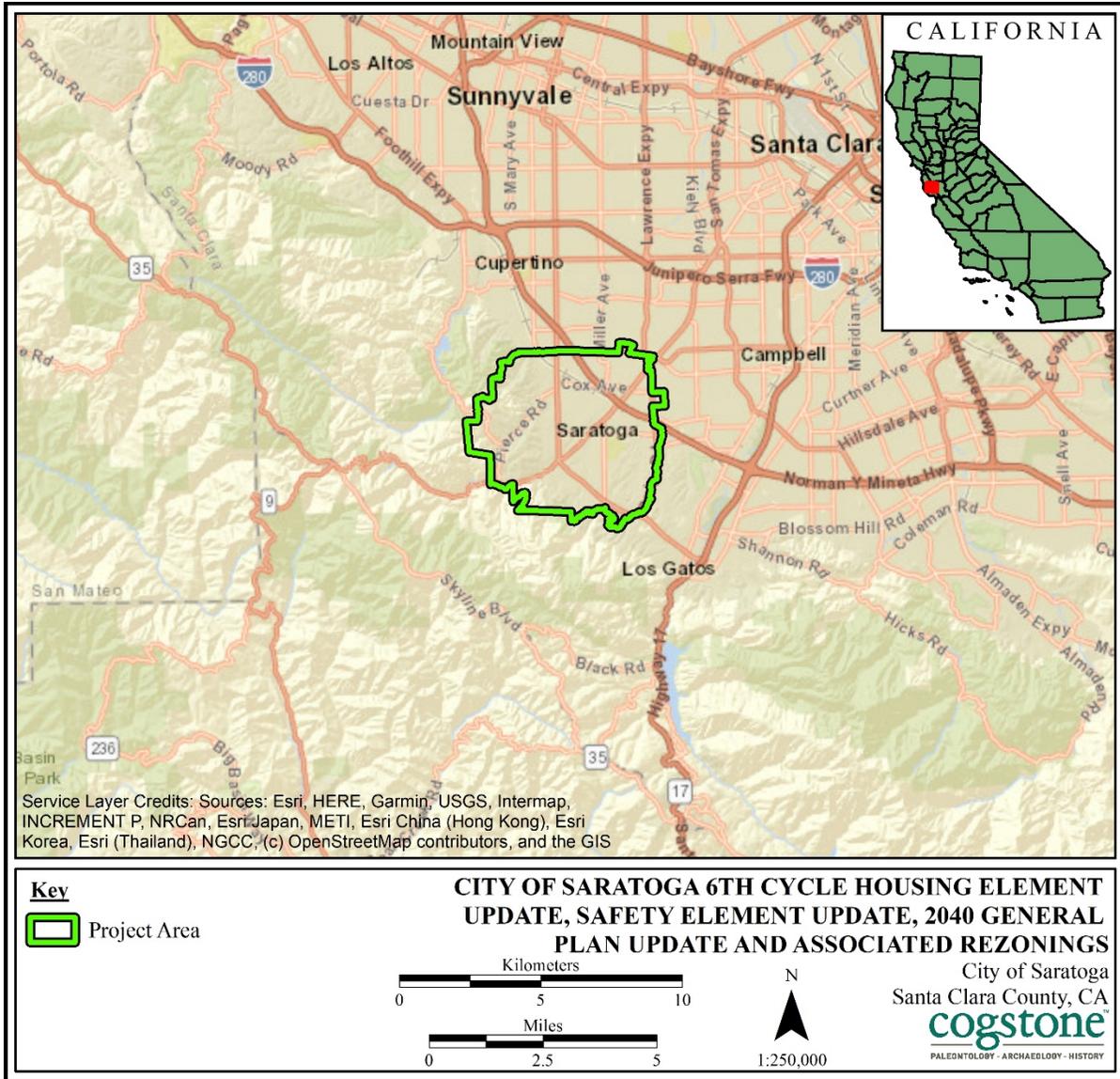


Figure 1. Project Vicinity Map

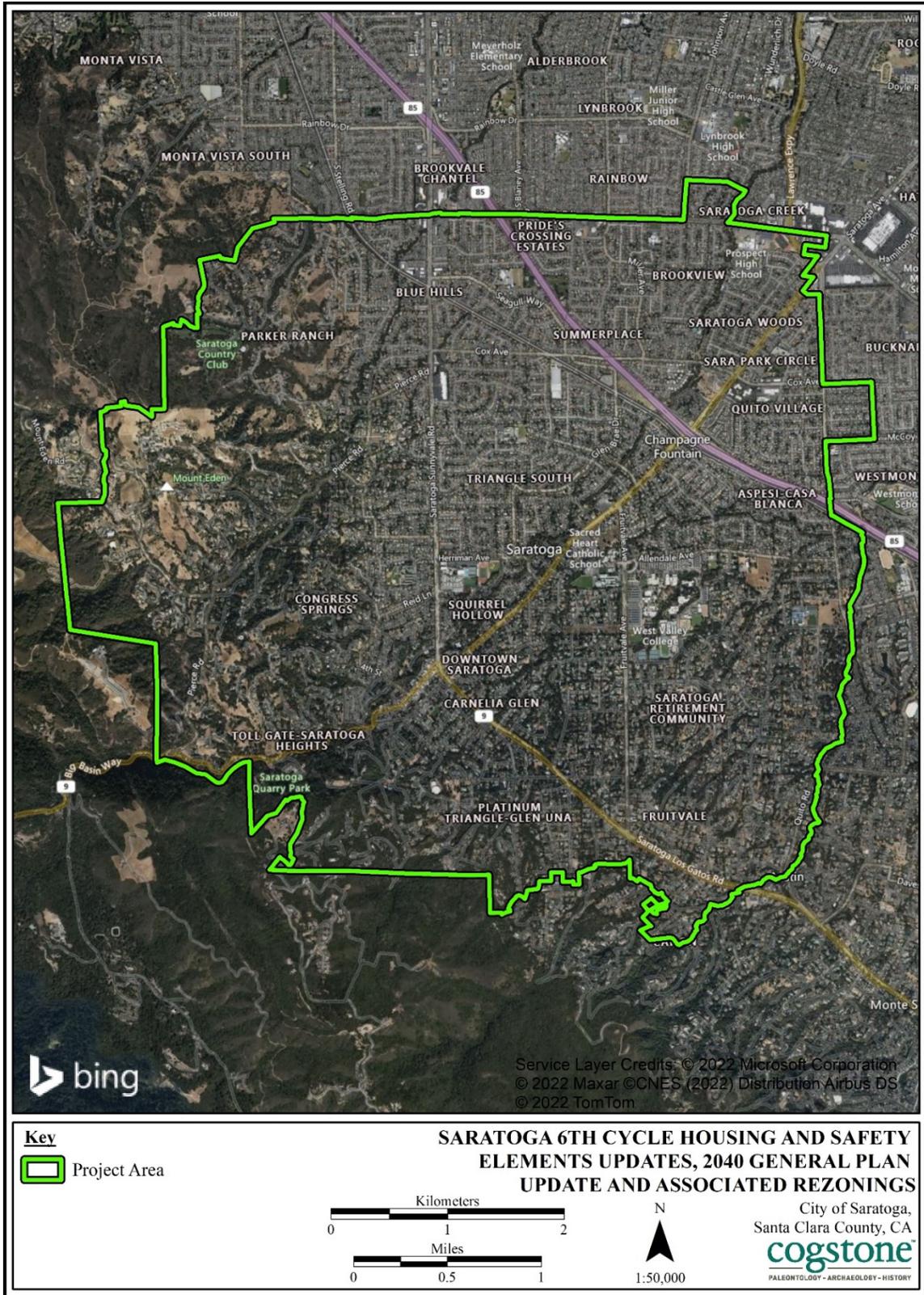


Figure 2. Project Location Map

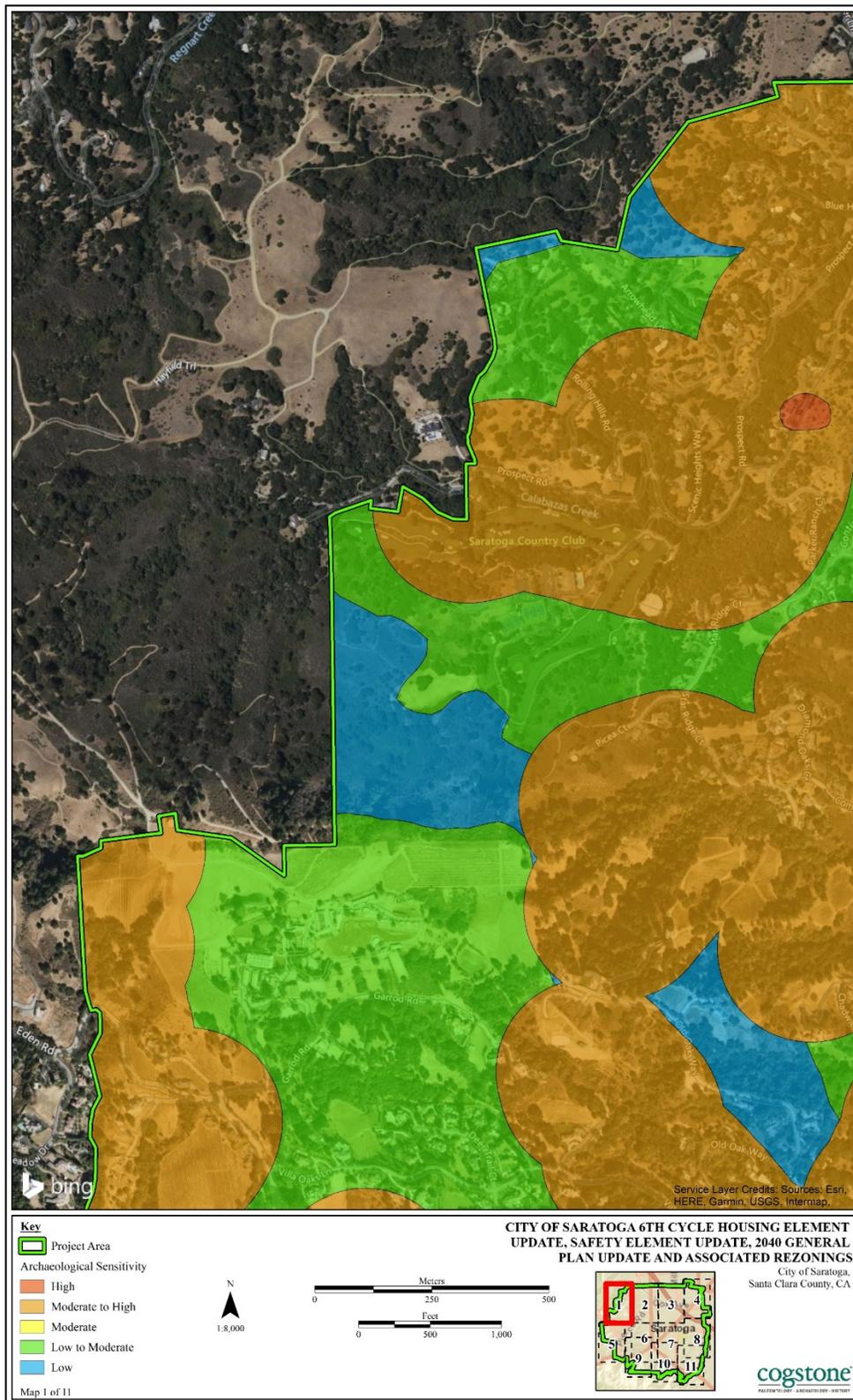
Figure

**Table C-5-1. Native American consultation contact log**

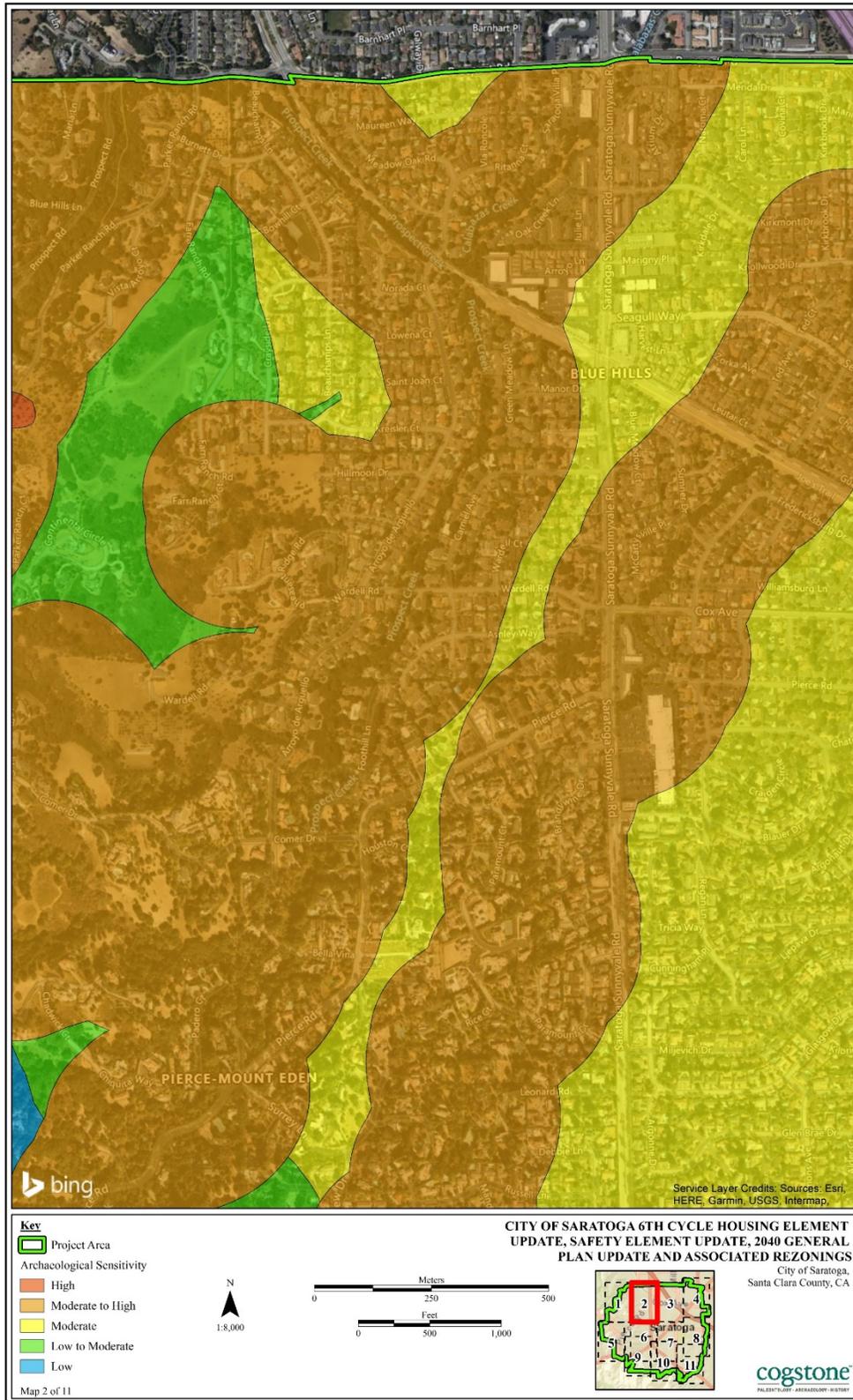
| <b>Native American Group and Contact</b>                                                   | <b>Type</b> | <b>Date(s) and Method of First Contact Attempt</b> | <b>Date(s) and Method of Second Attempt</b> | <b>Date(s) and Method of Third Attempt</b> | <b>Date(s) of Replies Rec'd</b> | <b>Comments</b> | <b>Results</b> |
|--------------------------------------------------------------------------------------------|-------------|----------------------------------------------------|---------------------------------------------|--------------------------------------------|---------------------------------|-----------------|----------------|
| Amah Mutsun Tribal Band, Chairperson Valentin Lopez                                        | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Amah Mutsun Tribal Band of Mission San Juan Bautista, Chairperson Irenne Zwierlein         | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Indian Canyon Band of Coastanoan/ Mutsun Indians, MLD Contact Kanyon Sayers-Roods          | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Indian Canyon Band of Coastanoan/ Mutsun Indians, Chairperson Ann Marie Sayers             | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Chairperson Charlene Nijmeh     | SB18        | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Vice Chairwoman Monica Arellano | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| North Valley Yokuts Tribe, Timothy Perez                                                   | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |

| <b>Native American Group and Contact</b>                             | <b>Type</b> | <b>Date(s) and Method of First Contact Attempt</b> | <b>Date(s) and Method of Second Attempt</b> | <b>Date(s) and Method of Third Attempt</b> | <b>Date(s) of Replies Rec'd</b> | <b>Comments</b> | <b>Results</b> |
|----------------------------------------------------------------------|-------------|----------------------------------------------------|---------------------------------------------|--------------------------------------------|---------------------------------|-----------------|----------------|
| North Valley Yokuts Tribe, Chairperson Katherine Perez               | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Rumsen Am:ataj Ohlone, Chairperson Dee Dee Ybarra                    | AB52        | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Tamien Nation, Chairperson Quirina Luna Geary                        | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| The Ohlone Indian Tribe, Andrew Galvan                               | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Trina Marine Ruano Family, Representative Ramona Garibay             | AB52        | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Wuksache Indian Tribe/Eshom Valley Band, Chairperson Kenneth Woodrow | SB18/AB52   | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Tamien Nation, THPO Johnathan Wasaka Costillas                       | AB52        | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |
| Ella Rodriguez                                                       | AB52        | July 19, 2022 - USPS Certified Mail                |                                             |                                            |                                 |                 |                |

**APPENDIX C-6. PREHISTORIC ARCHAEOLOGICAL  
SENSITIVITY MAPS**



Appendix C-6. Figure C-6.1. Prehistoric Archaeological Sensitivity Map 1 of 11



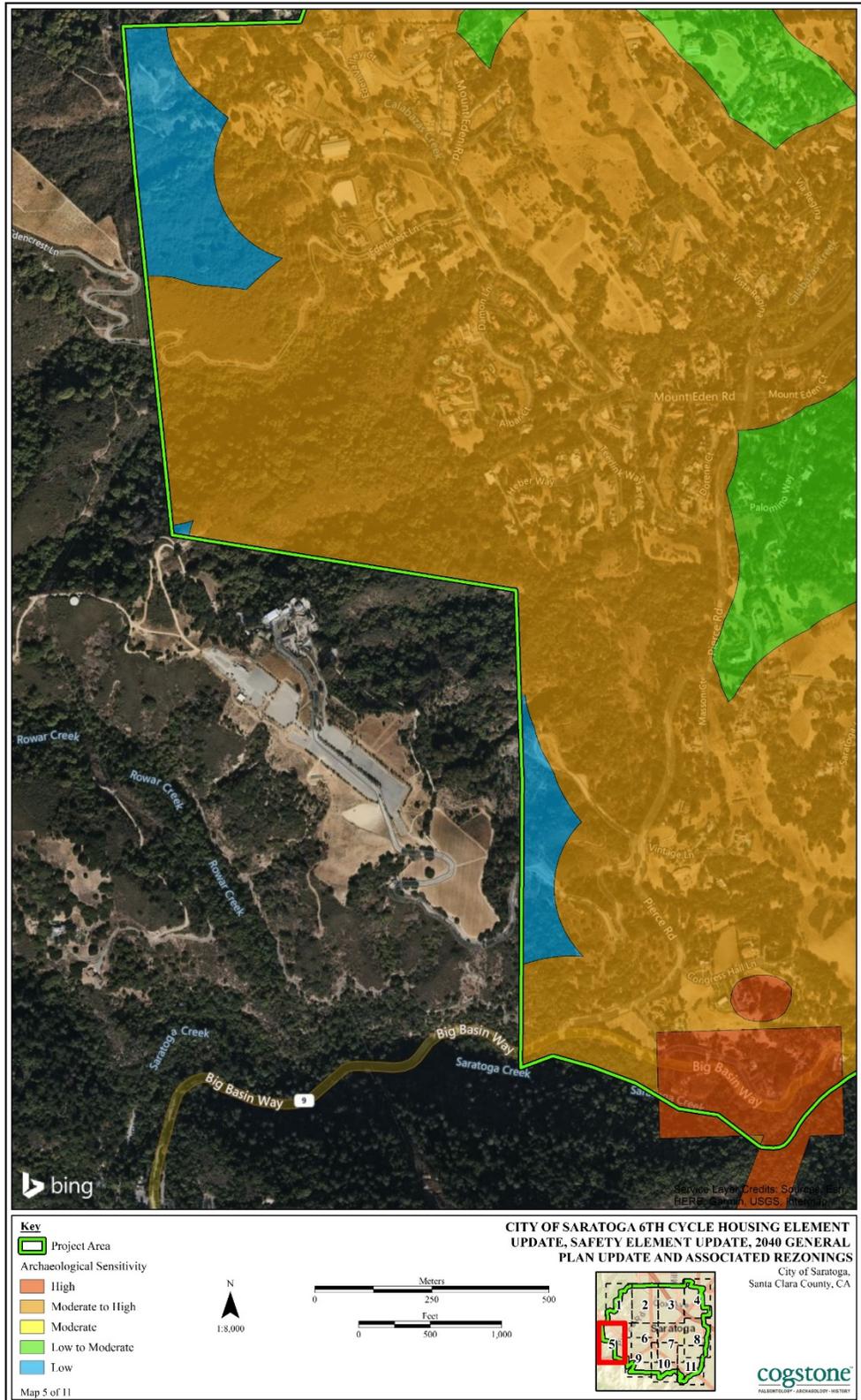
Appendix C-6. Figure C-6.2. Prehistoric Archaeological Sensitivity Map 2 of 11



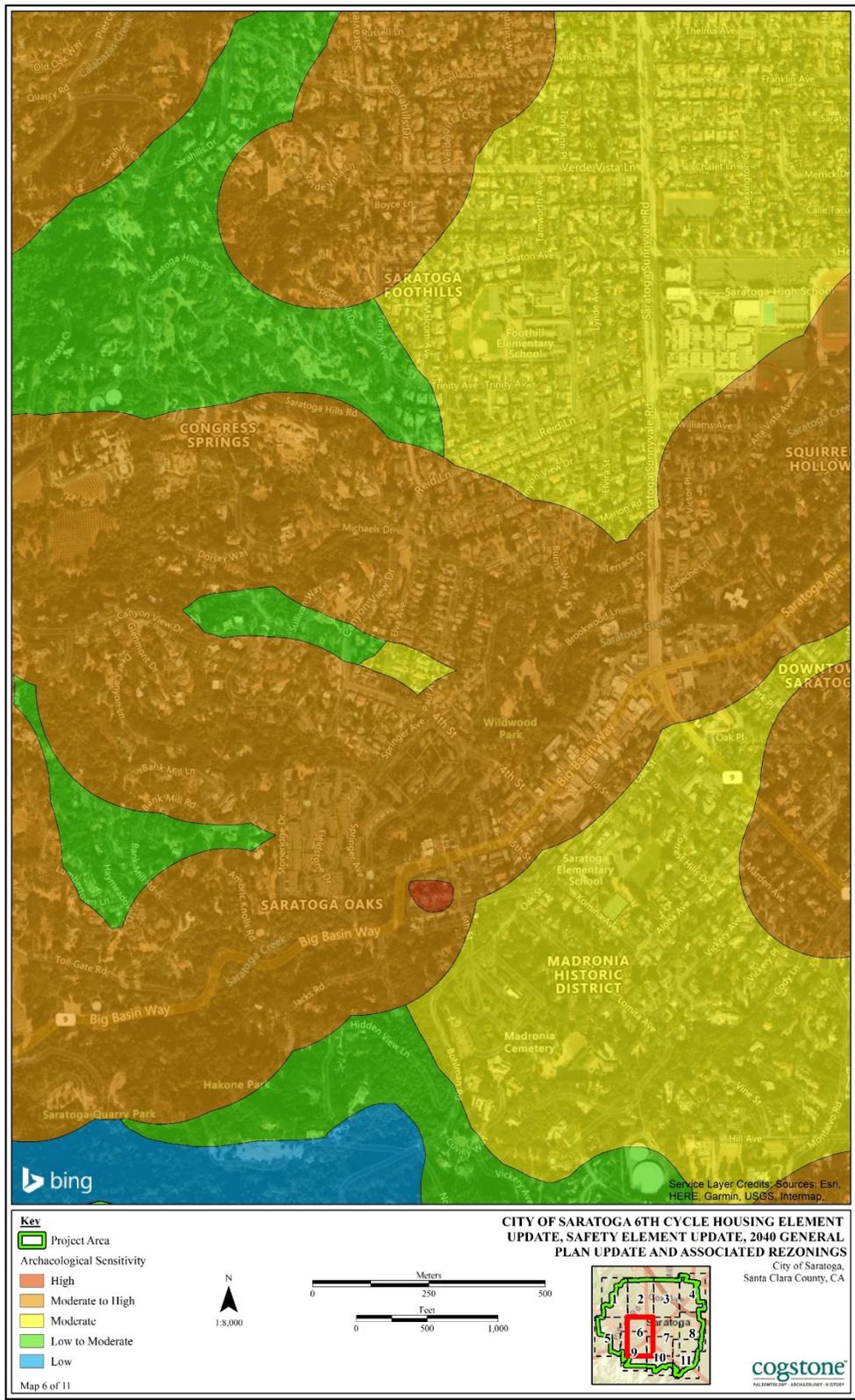
Appendix C-6. Figure C-6.. Prehistoric Archaeological Sensitivity Map 3 of 11



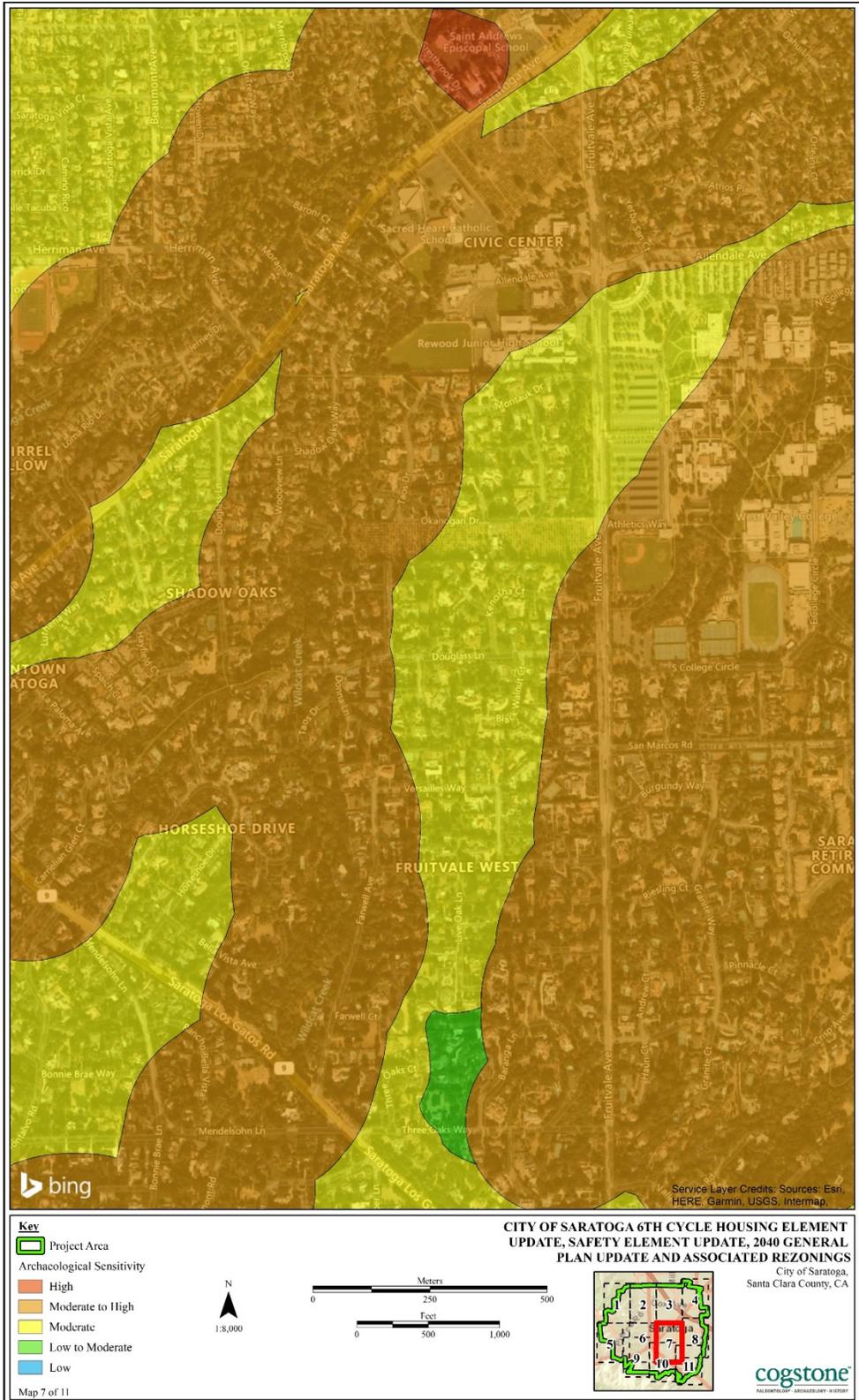
Appendix C-6. Figure C-6.4. Prehistoric Archaeological Sensitivity Map 4 of 11



Appendix C-6. Figure C-6.5. Prehistoric Archaeological Sensitivity Map 5 of 11



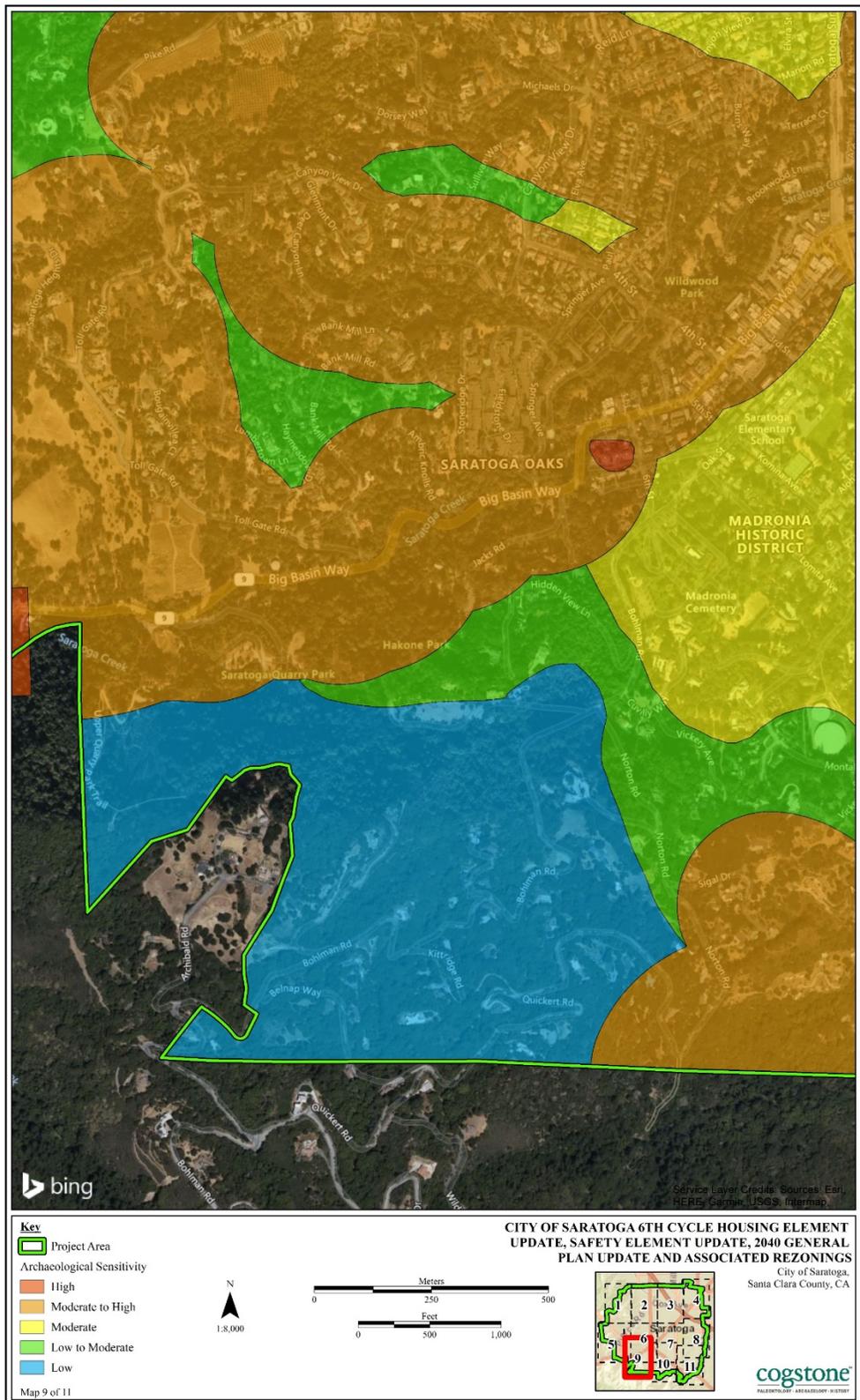
Appendix C. Figure C-6.6. Prehistoric Archaeological Sensitivity Map 6 of 11



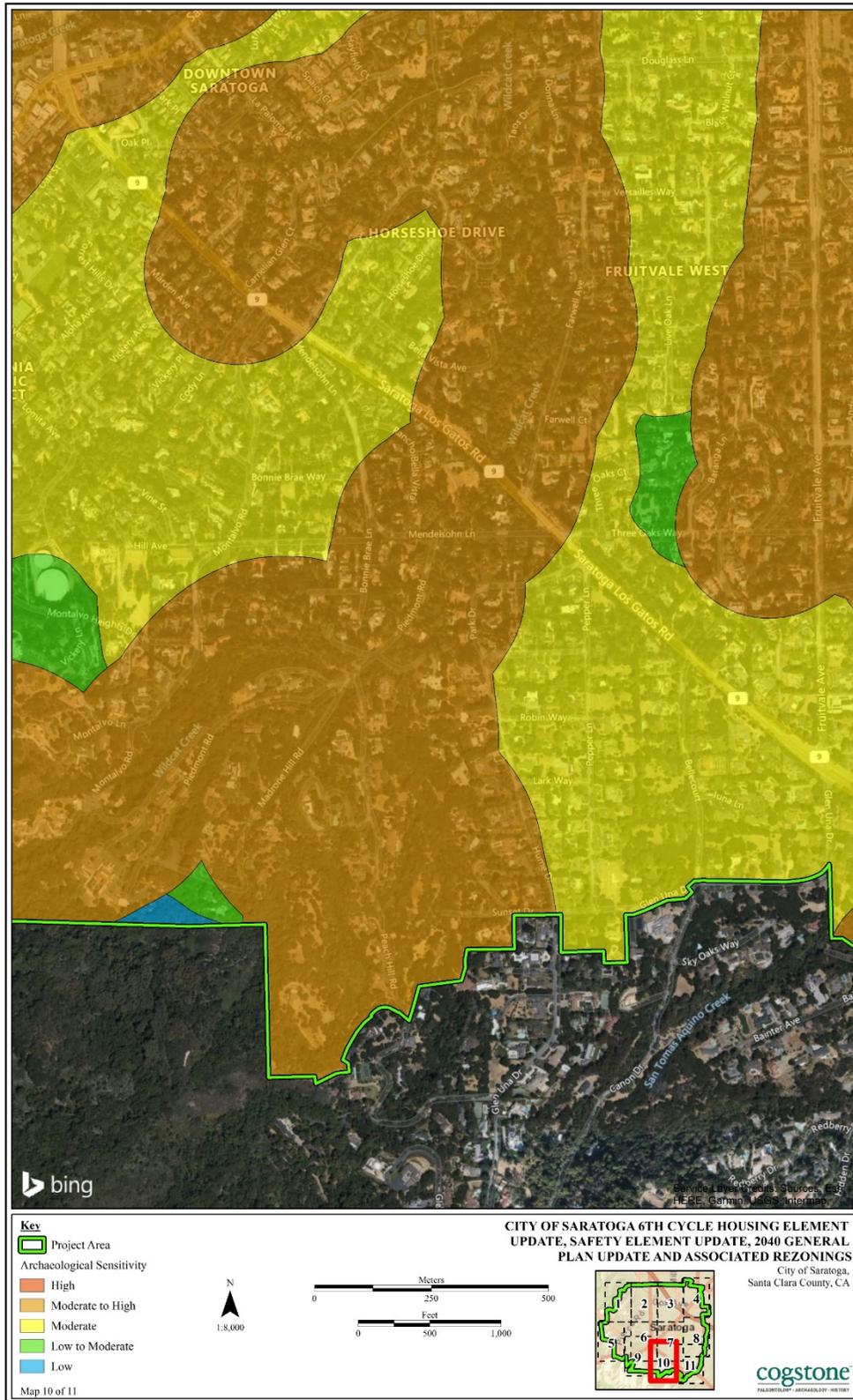
Appendix C. Figure C-6.7. Prehistoric Archaeological Sensitivity Map 7 of 11



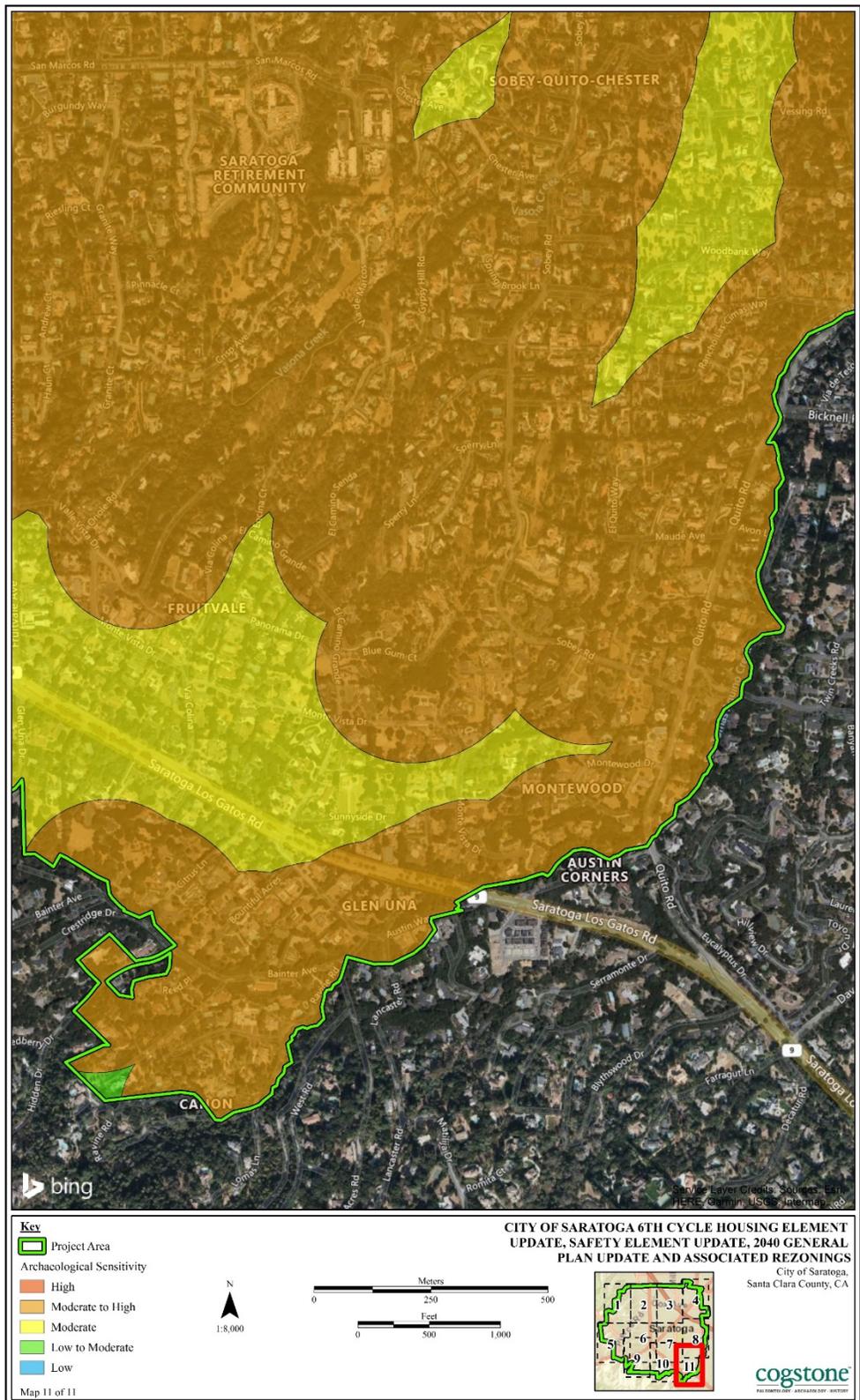
Appendix C-6. Figure C-6.8. Prehistoric Archaeological Sensitivity Map 8 of 11



Appendix C. Figure C-6.9. Prehistoric Archaeological Sensitivity Map 9 of 11



Appendix C. Figure C-6.10. Prehistoric Archaeological Sensitivity Map 10 of 11



Appendix C. Figure C-6.11. Prehistoric Archaeological Sensitivity Map 11 of 11

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APPENDIX D  
**NON-CEQA LEVEL OF SERVICE ANALYSIS**





## Memorandum

---

**Date:** November 11, 2022

**To:** Mr. Curtis Banks, Urban Planning Partners, Inc.

**From:** Shikha Jain, Katie Riutta

**Subject:** Intersection Level of Service Analysis for the Saratoga Housing Element Update in Saratoga, CA

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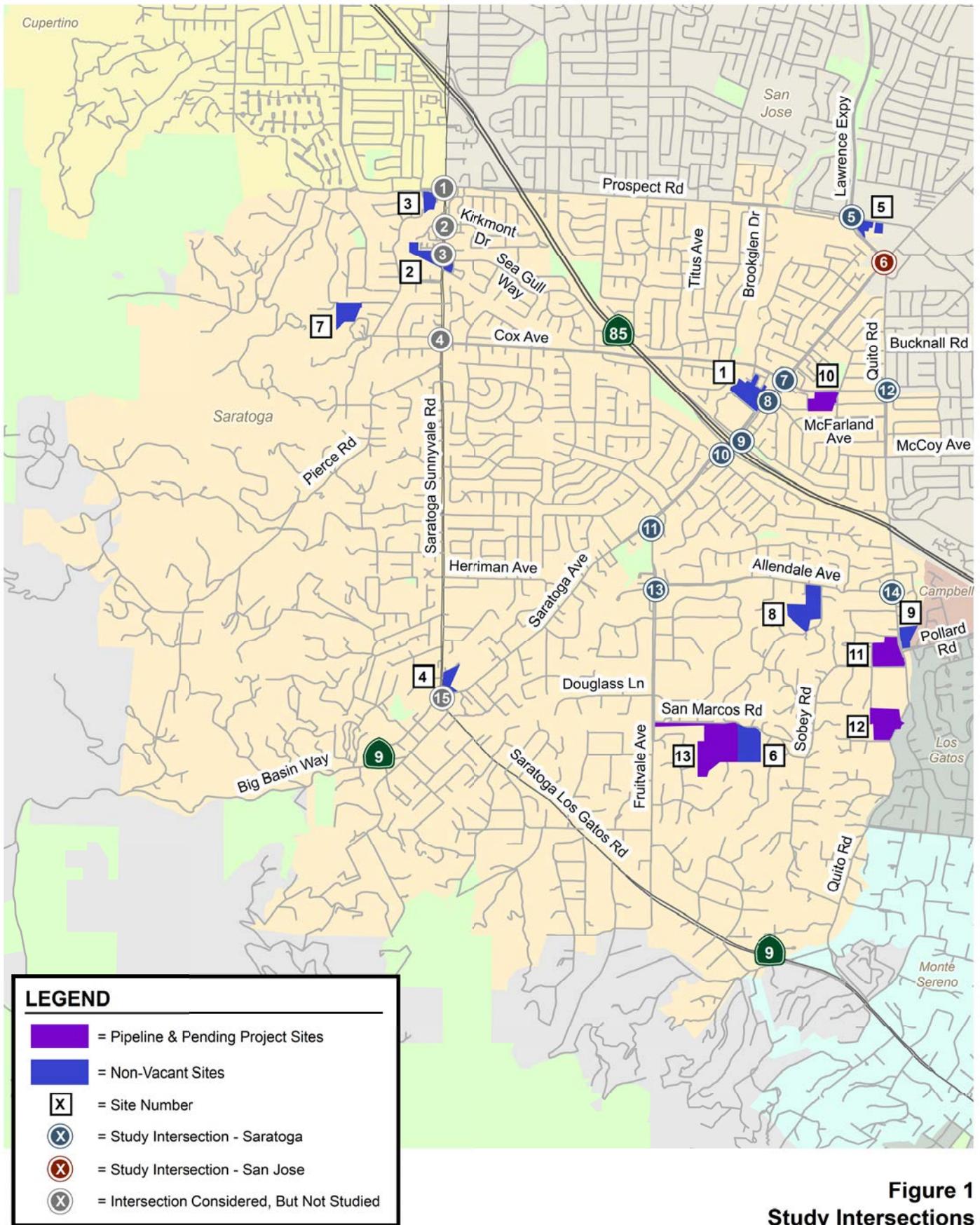
Hexagon Transportation Consultants, Inc. has completed a level of service analysis for the Saratoga Housing Element Update. This memo describes the level of service transportation analysis including the method by which project traffic is estimated, intersection operations analysis for existing, existing plus project, cumulative, and cumulative plus project scenarios, and any adverse effects to intersection level of service caused by the project.

The City of Saratoga is updating its General Plan Housing Element as mandated by State law for the Regional Housing Needs Assessment (RHNA) 2023-2031 planning cycle. This amendment would include 162 units that already have planning applications, nine Senate Bill (SB) 9 units in the pipeline, 46 vacant sites that can be developed with 60 single family units, 80 Senate Bill (SB) 9 units and 480 accessory dwelling units (ADUs) that could be built throughout the city, and 1,250 units that are assumed to be built on underutilized sites. Figure 1 shows the locations of the proposed housing sites in the City. The proposed housing sites are listed below:

1. Saratoga Avenue Site
2. Gateway South Site
3. Gateway North Site
4. Village East Site
5. Prospect/Lawrence Site
6. Fellowship Plaza Site
7. Wardell Site
8. Allendale/Chester Site
9. Quito/Pollard Site
10. Quito Village Site
11. Marshall Lane Subdivision Site
12. Quito Vessing Subdivision Site
13. Saratoga Retirement Community Site

## Scope of Study

The intersection operations analysis is based on the AM (7:00 AM and 9:00 AM) and PM (4:00 PM and 6:00 PM) peak-hour level of service for 12 signalized intersections and three unsignalized intersections in the vicinity of the project sites as illustrated in Figure 1. The list of study intersections was determined in consultation with City staff. The following intersections were identified for analysis:



**Figure 1**  
**Study Intersections**

1. Saratoga-Sunnyvale Road/De Anza Boulevard & Prospect Road
2. Saratoga-Sunnyvale Road & Kirkmont Drive/Oak Creek Lane (unsignalized)
3. Saratoga-Sunnyvale Road & Sea Gull Way
4. Saratoga-Sunnyvale Road & Cox Avenue/Wardell Road
5. Lawrence Expressway & Prospect Road\*
6. Lawrence Expressway/Quito Road & Saratoga Avenue [City of San Jose intersection]\*
7. Saratoga Avenue & Cox Avenue
8. Saratoga Avenue & McFarland Avenue (unsignalized)
9. Saratoga Avenue & SR 85 NB Ramps
10. Saratoga Avenue & SR 85 SB Ramps
11. Fruitvale Avenue & Saratoga Avenue
12. Quito Road & Cox Avenue (unsignalized)
13. Fruitvale Avenue & Allendale Avenue
14. Quito Road & Allendale Avenue
15. Saratoga-Sunnyvale Road/Saratoga-Los Gatos Road & Saratoga Avenue/Big Basin Way\*

\* Denotes CMP Intersections

Traffic conditions were evaluated for the following scenarios:

- **Existing Conditions.** Existing traffic volumes at the study intersections were based on pre-pandemic traffic counts conducted between 2018 and 2019 and new counts collected in 2021 and 2022 where pre-pandemic counts were not available. For locations where data was older than two years, a 1% compounded annual growth factor was used to escalate traffic volumes to 2021 conditions. The 2021 and 2022 counts were factored by comparing the new counts to available pre-pandemic counts.
- **Existing Plus Project Conditions.** Existing plus project traffic volumes were estimated by adding to existing traffic volumes the additional traffic generated by the proposed new development. Existing plus project conditions were evaluated relative to existing conditions to determine potential adverse project effects.
- **Cumulative Conditions.** The cumulative scenario assumed a year 2031 horizon, which represents the RHNA planning cycle. The cumulative conditions traffic volumes were determined using forecasts from the Countywide transportation demand model.
- **Cumulative Plus Project Conditions.** Cumulative plus project traffic volumes were estimated by adding to cumulative traffic volumes the additional traffic generated by the project. Cumulative plus project conditions were evaluated relative to cumulative conditions to determine potential adverse project effects.

## 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, existing data from recent traffic studies, existing data from the Santa Clara County CMP, field observations, and Google satellite imagery. The following data were collected from these sources:

- Existing peak-hour intersection turning-movement volumes
- Lane configurations
- Intersection signal timing and phasing

### **Level of Service Analysis Methodologies and 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 are described below.

The signalized study intersections located within the Cities of Saratoga and San Jose were evaluated based on each city's standard. The CMP intersections were evaluated based on the CMP standard.

#### **Signalized Intersections**

The Cities of Saratoga and San Jose evaluate level of service at signalized intersections based on the 2000 *Highway Capacity Manual (HCM)* level of service methodology using TRAFFIX software. Since TRAFFIX is the level of service analysis software for the CMP signalized intersections, the Cities of Saratoga and San Jose employ the CMP defaults values for the analysis parameters. This HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. The correlation between average delay and level of service is shown in Table 1.

Signalized study intersections are subject to the local municipalities' level of service standards. The City of Saratoga and the City of San Jose have established LOS D as the minimum acceptable intersection operations standard for all signalized intersections. The CMP study intersections are subject to the level of service standard of LOS E.

TRAFFIX software was used to analyze intersection operations and adverse intersection effects based on the increases in critical-movement delay and the volume-to-capacity ratio (v/c) between no-project conditions and project conditions. The thresholds for adverse intersection effects are described under Adverse Intersection Operations Effects below.

#### **Unsignalized Intersections**

The City of Saratoga does not have an adopted level of service standard for unsignalized intersections. The stop-controlled study intersections were analyzed for potential operational issues. As part of the evaluation, traffic volumes, delays, and traffic signal warrants were evaluated to determine if the existing intersection control is appropriate. The unsignalized study intersections were analyzed on the basis of the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the *California Manual on Uniform Traffic Control Devices (MUTCD)*, 2014 Edition.

**Table 1**  
**Signalized Intersection Level of Service Definitions Based on Control Delay**

| Level of Service | Description                                                                                                                                                                                                                                                                                    | Average Control Delay Per Vehicle (sec.) |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| A                | Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.                                                                                                          | 10.0 or less                             |
| B+               | Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.                                                                                                                            | 10.1 to 12.0                             |
| B                |                                                                                                                                                                                                                                                                                                | 12.1 to 18.0                             |
| B-               |                                                                                                                                                                                                                                                                                                | 18.1 to 20.0                             |
| C+               | Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.                               | 20.1 to 23.0                             |
| C                |                                                                                                                                                                                                                                                                                                | 23.1 to 32.0                             |
| C-               |                                                                                                                                                                                                                                                                                                | 32.1 to 35.0                             |
| D+               | The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.                           | 35.1 to 39.0                             |
| D                |                                                                                                                                                                                                                                                                                                | 39.1 to 51.0                             |
| D-               |                                                                                                                                                                                                                                                                                                | 51.1 to 55.0                             |
| E+               | This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.                                                          | 55.1 to 60.0                             |
| E                |                                                                                                                                                                                                                                                                                                | 60.1 to 75.0                             |
| E-               |                                                                                                                                                                                                                                                                                                | 75.1 to 80.0                             |
| F                | This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels. | greater than 80.0                        |

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.  
VTA Traffic Level of Service Analysis Guidelines (June 2003), Table 2.

### Adverse Intersection Operations Effects

According to the Saratoga and San Jose level of service standards, the project is said to create an adverse effect on intersection operations at a signalized intersection if for either peak hour, either of the following conditions occurs:

1. The level of service at the intersection degrades from an acceptable level (LOS D or better) under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or
2. The level of service at the intersection is an unacceptable level (LOS E or F) under existing conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four (4) or more seconds *and* the volume-to-capacity ratio (v/c) to increase by .01 or more.

The exception to criterion 2 above applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e., the change in average delay for critical movements is negative). In this case, the threshold is when the project increases in the critical v/c value by 0.01 or more. CMP standards are the same except the minimum acceptable LOS is LOS E.

A level of service deficiency is said to be satisfactorily improved when improvements are implemented that would restore intersection level of service to no-project conditions or better.

Adverse effects at signalized intersections can be addressed by one of the following approaches:

- Construct improvements to the subject intersection or other roadway segments of the Citywide transportation system to increase overall capacity, or
- Reduce project-generated vehicle trips (e.g., implement a “trip cap”) to eliminate the adverse operational effects and restore intersection operations to background conditions. The extent of trip reduction should be set at a level that is realistically attainable through proven methods of reducing trips.

## Intersection Operations Analysis

The intersection operations analysis is intended to quantify the operations of the study intersections and to identify potential negative effects due to the addition of project traffic. The project’s trip generation, trip distribution, and trip assignment are presented in this section. The study intersections are evaluated based on the intersection analysis methodology and standards described above in determining potential adverse operational effects due to the project.

### 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 project sites is estimated for the AM and PM peak hours. As part of the project trip distribution, the directions to and from which the project trips would travel are estimated. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

#### Trip Generation

AM and PM peak hour trip generation rates resulting from new development are typically estimated using trip rates published in the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual*, 11th Edition. Trips that would be generated by the proposed multifamily housing were estimated using the ITE trip rates for “Low-Rise Multifamily Housing” (Land use 220), “Mid-Rise Multifamily Housing” (Land use 221), and “High-Rise Multifamily Housing” (Land use 222) based on the proposed housing density on each site. Less than 25 dwelling units/acre were assumed to be “Low-Rise Multifamily Housing”, between 30-40 dwelling units/acre were assumed to be “Mid-Rise Multifamily Housing”, and between 80-150 dwelling units/acre were assumed to be “High-Rise Multifamily Housing”. Trips for the remaining proposed housing were estimated using the ITE trip rates for “Single-Family Detached Housing” (Land Use 210) and previous transportation analyses, including the *Quito Village Transportation Impact Analysis* dated September 20, 2019, and the *14500 Fruitvale Avenue Traffic Study* dated June 1, 2021.

Since the locations of all vacant and ADU sites and 80 SB 9 units are not yet known, the baseline intersection volumes were increased by a factor of 1.7% to represent these uses under project conditions. The factor was developed from the Countywide transportation demand model using the proportion of homes assumed to have ADUs and the percentage of home-based trips. The information is presented in the trip generation table for informational purposes only.

### **Existing Trip Credits**

Trips that are being generated by existing development on the sites were estimated using the ITE trip rates for “Small Office Building (<10K)” (Land use 712), “Strip Retail Plaza (<40K)” (Land use 822), “Mini-Warehouse” (Land use 151), “General Office Building (>10K)” (Land use 710), “Gasoline/Service Station” (Land use 944), “Car Wash and Detail Center” (Land use 949), “Automobile Parts and Service Center” (Land use 943), and “Automobile Parts Sales” (Land use 843). Trip credits were applied for locations where existing retail and office development would be removed.

### *Trip Adjustments and Reductions*

Trip generation estimates for retail uses are typically adjusted to account for pass-by trips. 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. Pass-by trips are therefore excluded from the traffic projections. Pass-by trip reductions of 63% for the AM peak-hour trips and 57% for the PM peak-hour trips were applied to the existing gas station based on the ITE *Trip Generation Manual*, 11th Edition Appendices. Likewise, a pass-by trip reduction of 43% was applied to the PM peak-hour trips for the existing automobile parts store.

### **Net Project Trips**

Based on the ITE trip generation rates and applicable reductions, it is estimated that the proposed project would generate 6,205 new daily trips throughout the City of Saratoga, including 547 new trips (12 fewer inbound and 559 outbound) during the AM peak hour, and 393 new trips (362 inbound and 30 outbound) during the PM peak hour. The trip generation is shown per housing development site in Table 2.

### **Trip Distribution**

The trip distribution patterns for the residential, commercial, and office uses were estimated based on existing travel patterns on the surrounding roadway network that reflect typical weekday AM and PM peak commute patterns for each land use, the locations of complementary land uses, and freeway access points. The trip distribution patterns are shown on Figure 2.

### **Trip Assignment**

Some project sites are estimated to generate negative or a low number of net trips. It is assumed that the proposed development at the following sites would not result in adverse effects to the intersections located in the vicinity of these sites:

- Site 2: Gateway South Site
- Site 3: Gateway North Site
- Site 4: Village East Site
- Site 5: Prospect/Lawrence Site
- Site 7: Wardell Site
- Site 8: Allendale/Chester Site

The following intersections near these sites were not analyzed:

- Saratoga-Sunnyvale Road/De Anza Boulevard & Prospect Road
- Saratoga-Sunnyvale Road & Kirkmont Drive/Oak Creek Lane
- Saratoga-Sunnyvale Road & Sea Gull Way
- Saratoga-Sunnyvale Road & Cox Avenue/Wardell Road
- Saratoga-Sunnyvale Road/Saratoga-Los Gatos Road & Saratoga Avenue/Big Basin Way

The project site locations are spread throughout the City, and some sites were grouped together for the level of service analysis. The analysis includes the following sites:

- Site 1: Saratoga Avenue Site
- Sites 6 and 13: Fellowship Plaza Site and Saratoga Retirement Community Site
- Sites 9, 11, and 12: Quito/Pollard Site, Marshall Lane Subdivision Site, and Quito Vessing Subdivision Site
- Site 10: Quito Village Site

The peak-hour vehicle trips generated by the existing and proposed project uses at the analyzed sites were assigned to the roadway network in accordance with the trip distribution patterns and the locations of project sites (see Figure 3). For the Saratoga Avenue Site (Site 1), it was assumed that access to the site would be provided via a driveway on Cox Avenue and the existing driveway located on the eastbound leg of the Saratoga Avenue & McFarland Avenue intersection.

**Table 2  
Project Trip Generation Estimates**

| Land Use <sup>1</sup>                             | Size      | Daily  |               |       | AM Peak Hour |     |            |           |            |       | PM Peak Hour |     |            |             |             |  |
|---------------------------------------------------|-----------|--------|---------------|-------|--------------|-----|------------|-----------|------------|-------|--------------|-----|------------|-------------|-------------|--|
|                                                   |           | Rate   | Trips         | Rate  | In           | Out | In         | Out       | Total      | Rate  | In           | Out | In         | Out         | Total       |  |
| <b>Site 1 - Saratoga Avenue Site</b>              |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Mid-Rise) <sup>2</sup>       | 344 DU    | 4.54   | 1,562         | 0.37  | 23%          | 77% | 29         | 98        | 127        | 0.39  | 61%          | 39% | 82         | 52          | 134         |  |
| Existing - Office Building (<10K) <sup>3</sup>    | -5.9 KSF  | 14.39  | -85           | 1.67  | 82%          | 18% | -8         | -2        | -10        | 2.16  | 34%          | 66% | -4         | -9          | -13         |  |
| <b>Net Site Trips</b>                             |           |        | <b>1,477</b>  |       |              |     | <b>21</b>  | <b>96</b> | <b>117</b> |       |              |     | <b>78</b>  | <b>43</b>   | <b>121</b>  |  |
| <b>Site 2 - Gateway South Site</b>                |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Mid-Rise) <sup>2</sup>       | 197 DU    | 4.54   | 894           | 0.37  | 23%          | 77% | 17         | 56        | 73         | 0.39  | 61%          | 39% | 47         | 30          | 77          |  |
| Existing - Strip Retail Plaza (<40K) <sup>4</sup> | -19.2 KSF | 54.45  | -1,045        | 2.36  | 60%          | 40% | -27        | -18       | -45        | 6.59  | 50%          | 50% | -64        | -63         | -127        |  |
| Existing - Mini Storage <sup>5</sup>              | -7.3 KSF  | 1.45   | -11           | 0.09  | 59%          | 41% | -1         | 0         | -1         | 0.15  | 47%          | 53% | 0          | -1          | -1          |  |
| Existing - Office Building (>10K) <sup>6</sup>    | -21.2 KSF | 10.84  | -230          | 1.52  | 88%          | 12% | -28        | -4        | -32        | 1.44  | 17%          | 83% | -5         | -26         | -31         |  |
| <b>Net Site Trips</b>                             |           |        | <b>-391</b>   |       |              |     | <b>-39</b> | <b>34</b> | <b>-5</b>  |       |              |     | <b>-22</b> | <b>-60</b>  | <b>-82</b>  |  |
| <b>Site 3 - Gateway North Site</b>                |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Mid-Rise) <sup>2</sup>       | 88 DU     | 4.54   | 400           | 0.37  | 23%          | 77% | 8          | 25        | 33         | 0.39  | 61%          | 39% | 21         | 13          | 34          |  |
| Existing - Strip Retail Plaza (<40K) <sup>4</sup> | -14.0 KSF | 54.45  | -762          | 2.36  | 60%          | 40% | -20        | -13       | -33        | 6.59  | 50%          | 50% | -46        | -46         | -92         |  |
| Existing - Gas Station <sup>7</sup>               | -8 VFP    | 172.01 | -1,376        | 10.28 | 50%          | 50% | -41        | -41       | -82        | 13.91 | 50%          | 50% | -56        | -55         | -111        |  |
| <i>Pass-By Reduction<sup>8</sup></i>              |           |        | 826           |       |              |     | 26         | 26        | 52         |       |              |     | 32         | 31          | 63          |  |
| <b>Net Site Trips</b>                             |           |        | <b>-913</b>   |       |              |     | <b>-27</b> | <b>-3</b> | <b>-30</b> |       |              |     | <b>-49</b> | <b>-57</b>  | <b>-106</b> |  |
| <b>Site 4 - Village East Site</b>                 |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Mid-Rise) <sup>2</sup>       | 87 DU     | 4.54   | 395           | 0.37  | 23%          | 77% | 7          | 25        | 32         | 0.39  | 61%          | 39% | 21         | 13          | 34          |  |
| Existing - Strip Retail Plaza (<40K) <sup>4</sup> | -6.7 KSF  | 54.45  | -365          | 2.36  | 60%          | 40% | -10        | -6        | -16        | 6.59  | 50%          | 50% | -22        | -22         | -44         |  |
| Existing - Office Building (>10K) <sup>6</sup>    | -28.7 KSF | 10.84  | -311          | 1.52  | 88%          | 12% | -39        | -5        | -44        | 1.44  | 17%          | 83% | -7         | -34         | -41         |  |
| Existing - Office Building (<10K) <sup>3</sup>    | -6.7 KSF  | 14.39  | -96           | 1.67  | 82%          | 18% | -9         | -2        | -11        | 2.16  | 34%          | 66% | -5         | -9          | -14         |  |
| <b>Net Site Trips</b>                             |           |        | <b>-377</b>   |       |              |     | <b>-51</b> | <b>12</b> | <b>-39</b> |       |              |     | <b>-13</b> | <b>-52</b>  | <b>-65</b>  |  |
| <b>Site 5 - Prospect / Lawrence Site</b>          |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (High-Rise) <sup>9</sup>      | 410 DU    | 4.54   | 1,861         | 0.27  | 34%          | 66% | 38         | 73        | 111        | 0.32  | 56%          | 44% | 73         | 58          | 131         |  |
| Existing - Strip Retail Plaza (<40K) <sup>4</sup> | -37.2 KSF | 54.45  | -2,026        | 2.36  | 60%          | 40% | -53        | -35       | -88        | 6.59  | 50%          | 50% | -123       | -122        | -245        |  |
| Existing - Car Wash <sup>10</sup>                 | -4 WS     | 156.20 | -625          | 8.60  | 63%          | 37% | -21        | -13       | -34        | 13.60 | 49%          | 51% | -26        | -28         | -54         |  |
| Existing - Auto Repair <sup>11</sup>              | -5.3 KSF  | 16.60  | -88           | 1.91  | 72%          | 28% | -7         | -3        | -10        | 2.06  | 39%          | 61% | -4         | -7          | -11         |  |
| Existing - Auto Parts <sup>12</sup>               | -12.3 KSF | 54.57  | -671          | 2.51  | 55%          | 45% | -17        | -14       | -31        | 4.90  | 48%          | 52% | -29        | -31         | -60         |  |
| <i>Pass-By Reduction<sup>13</sup></i>             |           |        | 144           |       |              |     | 0          | 0         | 0          |       |              |     | 12         | 13          | 26          |  |
| <b>Net Site Trips</b>                             |           |        | <b>-1,404</b> |       |              |     | <b>-60</b> | <b>8</b>  | <b>-52</b> |       |              |     | <b>-97</b> | <b>-117</b> | <b>-213</b> |  |
| <b>Site 6 - Fellowship Plaza Site</b>             |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Low-Rise) <sup>14</sup>      | 80 DU     | 6.74   | 539           | 0.40  | 24%          | 76% | 8          | 24        | 32         | 0.51  | 63%          | 37% | 26         | 15          | 41          |  |
| <b>Net Site Trips</b>                             |           |        | <b>539</b>    |       |              |     | <b>8</b>   | <b>24</b> | <b>32</b>  |       |              |     | <b>26</b>  | <b>15</b>   | <b>41</b>   |  |
| <b>Site 7 - Wardell Site</b>                      |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Low-Rise) <sup>14</sup>      | 10 DU     | 6.74   | 67            | 0.40  | 24%          | 76% | 1          | 3         | 4          | 0.51  | 63%          | 37% | 3          | 2           | 5           |  |
| <b>Net Site Trips</b>                             |           |        | <b>67</b>     |       |              |     | <b>1</b>   | <b>3</b>  | <b>4</b>   |       |              |     | <b>3</b>   | <b>2</b>    | <b>5</b>    |  |
| <b>Site 8 - Allendale / Chester Site</b>          |           |        |               |       |              |     |            |           |            |       |              |     |            |             |             |  |
| Multifamily Housing (Low-Rise) <sup>14</sup>      | 24 DU     | 6.74   | 162           | 0.40  | 24%          | 76% | 2          | 8         | 10         | 0.51  | 63%          | 37% | 8          | 4           | 12          |  |
| <b>Net Site Trips</b>                             |           |        | <b>162</b>    |       |              |     | <b>2</b>   | <b>8</b>  | <b>10</b>  |       |              |     | <b>8</b>   | <b>4</b>    | <b>12</b>   |  |

**Table 2 (continued)  
Project Trip Generation Estimates**

|                                                         |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
|---------------------------------------------------------|-----|----|------|--------------|------|-----|-----|-----------|------------|------------|------|-----|-----|------------|------------|------------|
| <b>Site 9 - Quito / Pollard Site</b>                    |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Multifamily Housing (Low-Rise) <sup>14</sup>            | 10  | DU | 6.74 | 67           | 0.40 | 24% | 76% | 1         | 3          | 4          | 0.51 | 63% | 37% | 3          | 2          | 5          |
| <b>Net Site Trips</b>                                   |     |    |      | <b>67</b>    |      |     |     | <b>1</b>  | <b>3</b>   | <b>4</b>   |      |     |     | <b>3</b>   | <b>2</b>   | <b>5</b>   |
| <b>Site 10 - Quito Village Site [P]</b>                 |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Multifamily Housing (Low-Rise) <sup>15</sup>            | 91  | DU | 7.32 | 666          | 0.46 | 24% | 76% | 10        | 32         | 42         | 0.56 | 63% | 37% | 32         | 19         | 51         |
| <b>Net Site Trips</b>                                   |     |    |      | <b>666</b>   |      |     |     | <b>10</b> | <b>32</b>  | <b>42</b>  |      |     |     | <b>32</b>  | <b>19</b>  | <b>51</b>  |
| <b>Site 11 - Marshall Lane Subdivision Site [P]</b>     |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Single-Family Housing <sup>16</sup>                     | 9   | DU | 9.43 | 85           | 0.70 | 26% | 74% | 2         | 4          | 6          | 0.94 | 63% | 37% | 5          | 3          | 8          |
| <b>Net Site Trips</b>                                   |     |    |      | <b>85</b>    |      |     |     | <b>2</b>  | <b>4</b>   | <b>6</b>   |      |     |     | <b>5</b>   | <b>3</b>   | <b>8</b>   |
| <b>Site 12 - Quito Vessing Subdivision Site [P]</b>     |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Single-Family Housing <sup>16</sup>                     | 10  | DU | 9.43 | 94           | 0.70 | 26% | 74% | 2         | 5          | 7          | 0.94 | 63% | 37% | 6          | 3          | 9          |
| <b>Net Site Trips</b>                                   |     |    |      | <b>94</b>    |      |     |     | <b>2</b>  | <b>5</b>   | <b>7</b>   |      |     |     | <b>6</b>   | <b>3</b>   | <b>9</b>   |
| <b>Site 13 - Saratoga Retirement Community Site [P]</b> |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Senior Adult Housing <sup>17</sup>                      | 52  | DU | 3.70 | 192          | 0.20 | 35% | 65% | 4         | 6          | 10         | 0.26 | 55% | 45% | 8          | 6          | 14         |
| <b>Net Site Trips</b>                                   |     |    |      | <b>192</b>   |      |     |     | <b>4</b>  | <b>6</b>   | <b>10</b>  |      |     |     | <b>8</b>   | <b>6</b>   | <b>14</b>  |
| <b>Site 14 - Hill Ave Site [P]</b>                      |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Single-Family Housing <sup>16</sup>                     | 1   | DU | 9.43 | 9            | 0.70 | 26% | 74% | 0         | 1          | 1          | 0.94 | 63% | 37% | 1          | 0          | 1          |
| <b>Net Site Trips</b>                                   |     |    |      | <b>9</b>     |      |     |     | <b>0</b>  | <b>1</b>   | <b>1</b>   |      |     |     | <b>1</b>   | <b>0</b>   | <b>1</b>   |
| <b>Projected SB 9 Units [P]<sup>18</sup></b>            |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Single-Family Housing <sup>16</sup>                     | 89  | DU | 9.43 | 839          | 0.70 | 26% | 74% | 16        | 46         | 62         | 0.94 | 63% | 37% | 53         | 31         | 84         |
| <b>Net Site Trips</b>                                   |     |    |      | <b>839</b>   |      |     |     | <b>16</b> | <b>46</b>  | <b>62</b>  |      |     |     | <b>53</b>  | <b>31</b>  | <b>84</b>  |
| <b>Vacant / ADU<sup>18</sup></b>                        |     |    |      |              |      |     |     |           |            |            |      |     |     |            |            |            |
| Single-Family Housing <sup>16</sup>                     | 540 | DU | 9.43 | 5,092        | 0.70 | 26% | 74% | 98        | 280        | 378        | 0.94 | 63% | 37% | 320        | 188        | 508        |
| <b>Net Site Trips</b>                                   |     |    |      | <b>5,092</b> |      |     |     | <b>98</b> | <b>280</b> | <b>378</b> |      |     |     | <b>320</b> | <b>188</b> | <b>508</b> |

**Notes**

[P] indicates Pipeline Project

<sup>1</sup> Trip rates are from the ITE Trip Generation Manual, 11th Edition, 2021.

<sup>2</sup> Multifamily Housing (Mid-Rise) (Land Use 221), average rates expressed in trips per dwelling unit (DU) are used.

<sup>3</sup> Small Office Building (<10K) (Land Use 712), average rates expressed in trips per 1,000 square feet (KSF) are used.

<sup>4</sup> Strip Retail Plaza (<40K) (Land Use 822), average rates expressed in trips per 1000 square feet are used.

<sup>5</sup> Mini-Warehouse (Land Use 151), average rates expressed in trips per 1,000 square feet (KSF) are used.

<sup>6</sup> General Office Building (>10K) (Land Use 710), average rates expressed in trips per 1,000 square feet (KSF) are used.

<sup>7</sup> Gasoline/Service Station (Land Use 944), average rates expressed in trips per vehicle fueling positions (VFP) are used.

<sup>8</sup> Pass-by trip reduction for Land Use Code 944: Gasoline/Service Station is based on the average pass-by trip reduction rates published in the ITE Trip Generation Manual, 11th Edition Appendices. Hexagon assumes the average of AM and PM pass-by reduction for daily trip generation.

<sup>9</sup> Multifamily Housing (High-Rise) (Land Use 222), average rates expressed in trips per dwelling unit (DU) are used.

<sup>10</sup> Car Wash and Detail Center (Land Use 949), average rates expressed in trips per wash stall (WS) are used.

<sup>11</sup> Automobile Parts and Service Center (Land Use 943), average rates expressed in trips per 1,000 square feet (KSF) are used.

<sup>12</sup> Automobile Parts Sales (Land Use 843), average rates expressed in trips per 1,000 square feet (KSF) are used.

<sup>13</sup> Pass-by trip reduction for Land Use Code 843: Automobile Parts Sales is based on the average pass-by trip reduction rate published in the ITE Trip Generation Manual, 11th Edition Appendices. Hexagon assumes no pass-by trip reduction during the AM peak hour and half of the PM peak pass-by reduction for daily trip generation.

<sup>14</sup> Multifamily Housing (Low-Rise) (Land Use 220), average rates expressed in trips per dwelling unit (DU) are used.

<sup>15</sup> The trip generation from the *Quito Village Transportation Impact Analysis* dated September 20, 2019 is used.

<sup>16</sup> Single-Family Detached Housing (Land Use 210), average rates expressed in trips per dwelling unit (DU) are used.

<sup>17</sup> The trip generation from the *14500 Fruitvale Avenue Traffic Study* dated June 1, 2021 is used.

<sup>18</sup> Since the locations of all vacant and ADU sites and 80 SB 9 units are not yet known, the baseline intersection volumes were increased by a factor of 1.7% to represent these uses under project conditions. The factor was developed from the Countywide transportation demand model using the proportion of homes assumed to have ADUs and the percentage of home based trips. It is assumed that ADUs generate similar trips as single family housing. The information is presented in the trip generation table for informational purposes only.

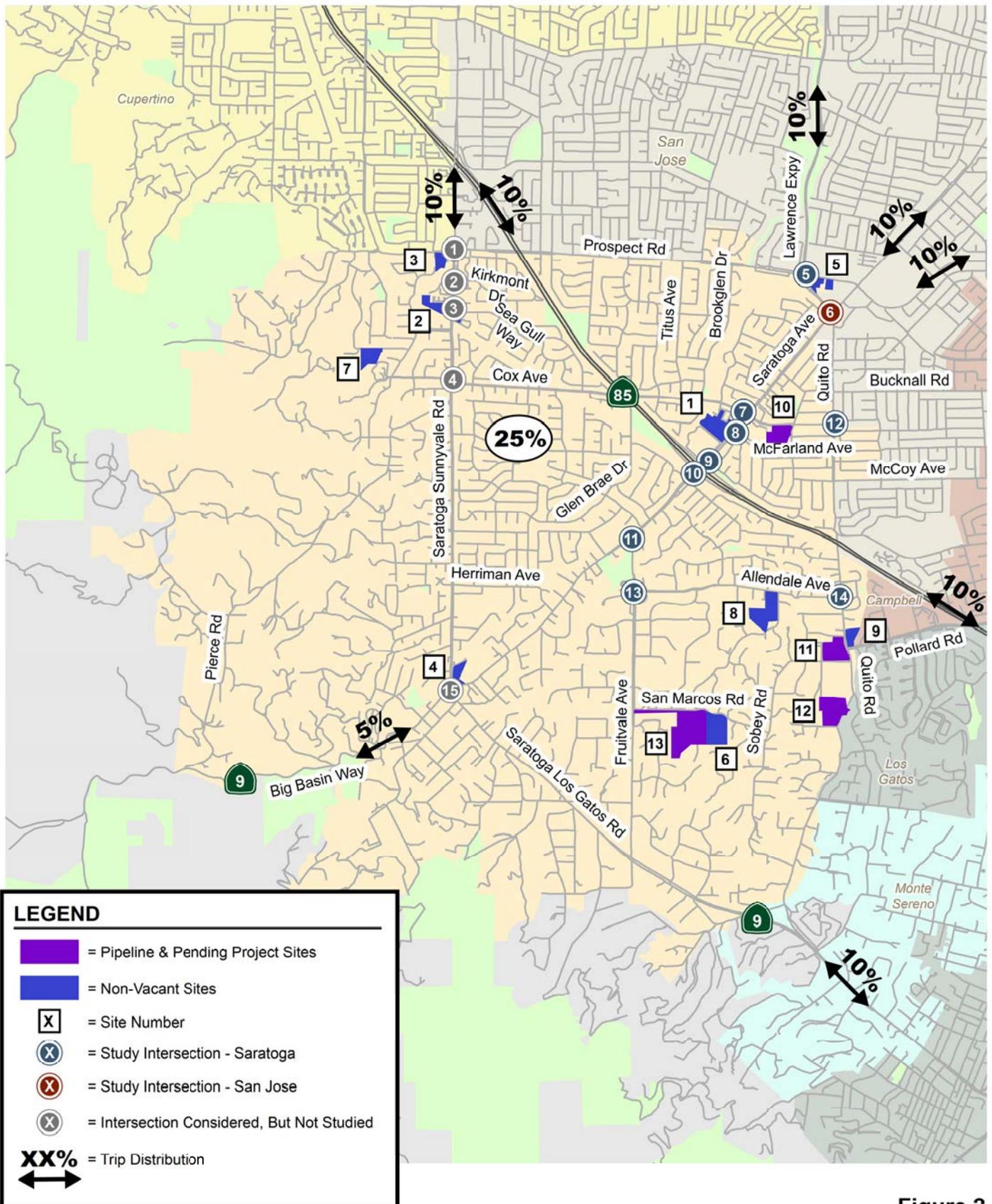
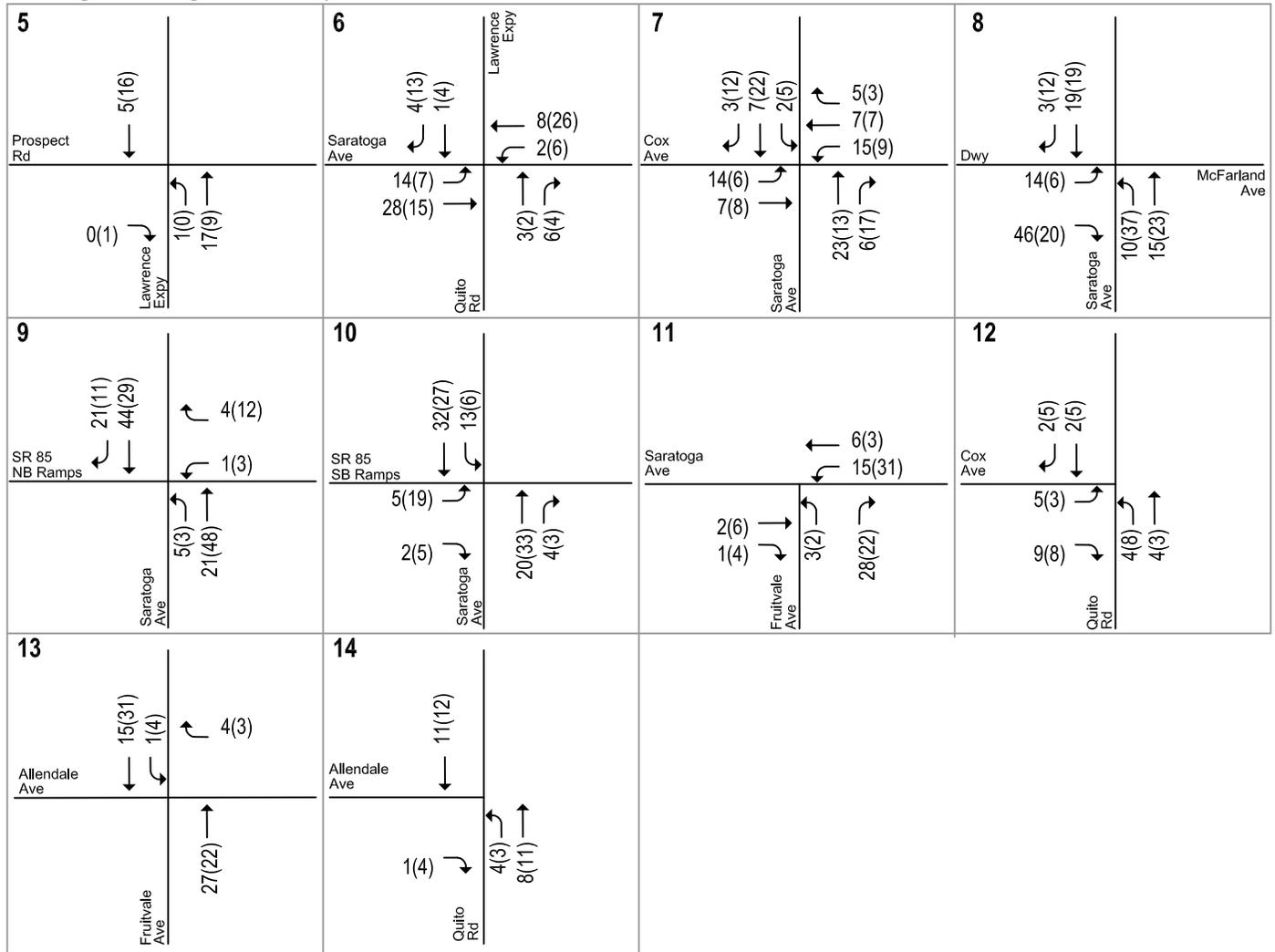


Figure 2  
Project Trip Distribution

Saratoga Housing Element Update



**LEGEND**  
 \_\_\_\_\_  
 XX(XX) = AM(PM) Peak-Hour Trips

**Figure 3  
 Project Trip Assignment**

## Intersection Lane Configurations and Traffic Volumes Under All Scenarios

### Existing Conditions

The existing lane configurations at the study intersections are shown on Figure 4.

Existing AM and PM traffic volumes at the study intersections were based on pre-pandemic traffic counts conducted in 2018 and 2019 and new AM and PM peak hour counts collected in 2021 and 2022 where pre-pandemic counts were not available. Since the pre-pandemic counts are older than two years, a 1% compounded annual growth factor was used to escalate traffic volumes to 2021 conditions.

Due to regional shelter-in-place orders during the COVID-19 pandemic, the 2021 traffic counts do not represent typical traffic conditions. These counts were factored by comparing new counts to available pre-pandemic counts. The factors were derived based on the escalated pre-pandemic counts at two intersections (Saratoga-Sunnyvale Road/De Anza Boulevard & Prospect Road and Lawrence Expressway/Quito Road & Saratoga Avenue) and new counts conducted at these intersections. Compared to the escalated pre-pandemic counts, the new 2021 and 2022 counts were 39 percent lower during the AM peak hour and 38 percent lower during the PM peak hour. These percentages were used to adjust the 2021 and 2022 intersection counts to reflect pre-COVID conditions. The adjusted existing peak-hour intersection volumes are shown on Figure 5. Intersection turning-movement counts conducted for this analysis are presented in Appendix A. The volume summary sheets with the adjusted existing counts are presented in Appendix B.

### Existing Plus Project Conditions

The intersection lane configurations under existing plus project conditions are assumed to be the same as under existing conditions.

Project trips were added to existing traffic volumes to obtain existing plus project traffic volumes (see Figure 6).

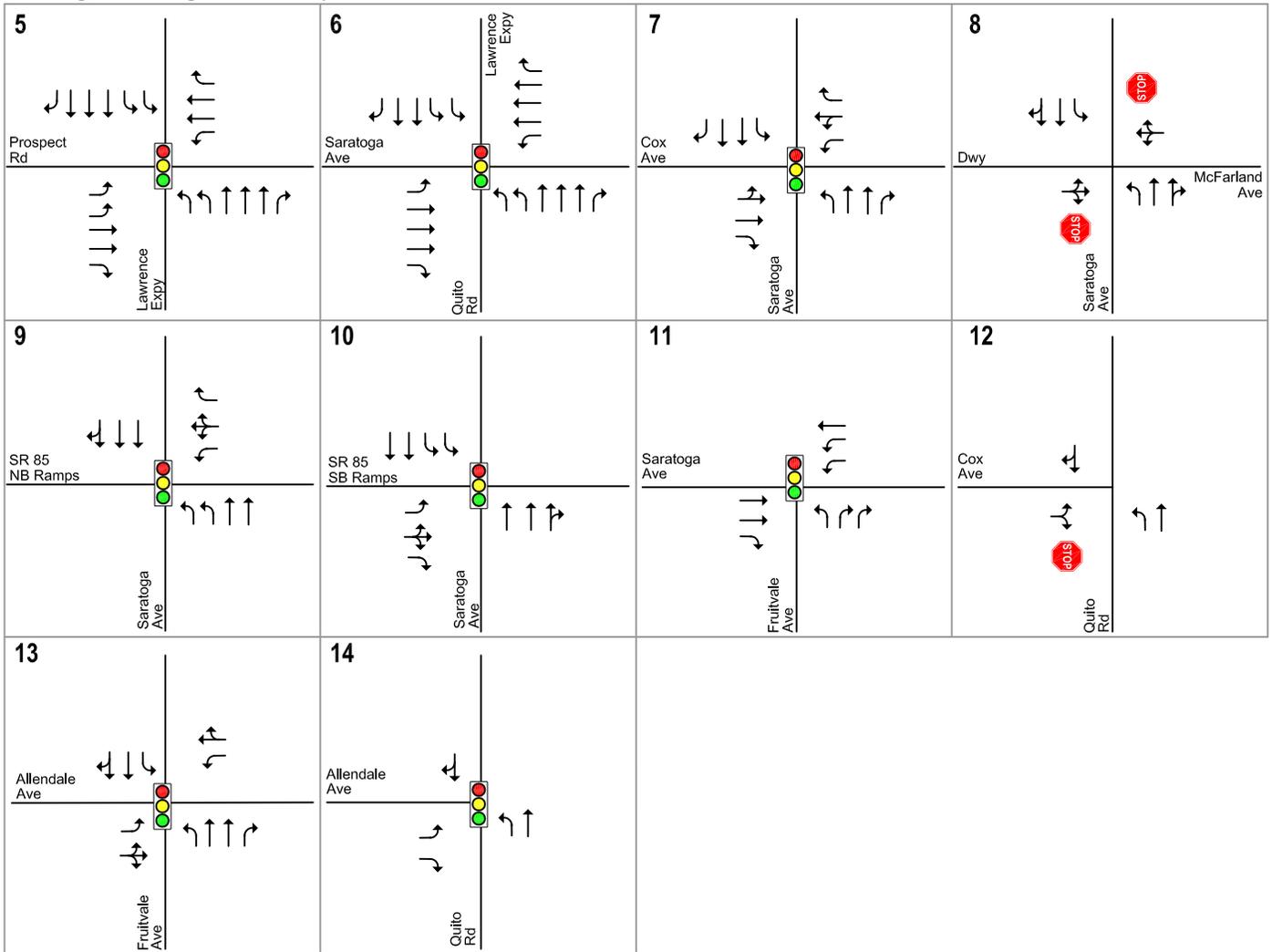
### Cumulative Conditions

Roadway improvements identified at the Saratoga Avenue & Cox Avenue intersection in the Prospect Road Improvement Project were assumed to be implemented under the cumulative scenarios. The improvements include the addition of a second westbound left turn lane from Cox Avenue to southbound Saratoga Avenue. Thus, the westbound geometry was assumed to be two left-turn lanes and one shared through-right lane. Based on the City's website, the intersection improvement will be in Phase 2 of the project. Construction of Phase 2 is planned to begin in July 2022 and will be completed by May 2023.

A second eastbound left-turn lane was recently installed at the Lawrence Expressway/Quito Road & Saratoga Avenue intersection. Since the existing counts for this intersection are from 2018, this roadway improvement was only included under the cumulative scenarios.

The cumulative scenario assumed a year 2031 horizon, which represents the RHNA planning cycle. The cumulative conditions traffic volumes were determined using forecasts from the Countywide transportation demand model. The cumulative no-project volumes include only the approved Pipeline projects, which are the Quito Village Site and Marshall Lane Subdivision Site. The pending Pipeline projects, which are the Quito Vessing Subdivision Site and the Saratoga Retirement Community Site are included as part of the project. The cumulative volumes also include trips from the El Paseo and 1777 Saratoga Avenue Mixed-Use Village project. The cumulative peak-hour intersection volumes are shown on Figure 7.

Saratoga Housing Element Update

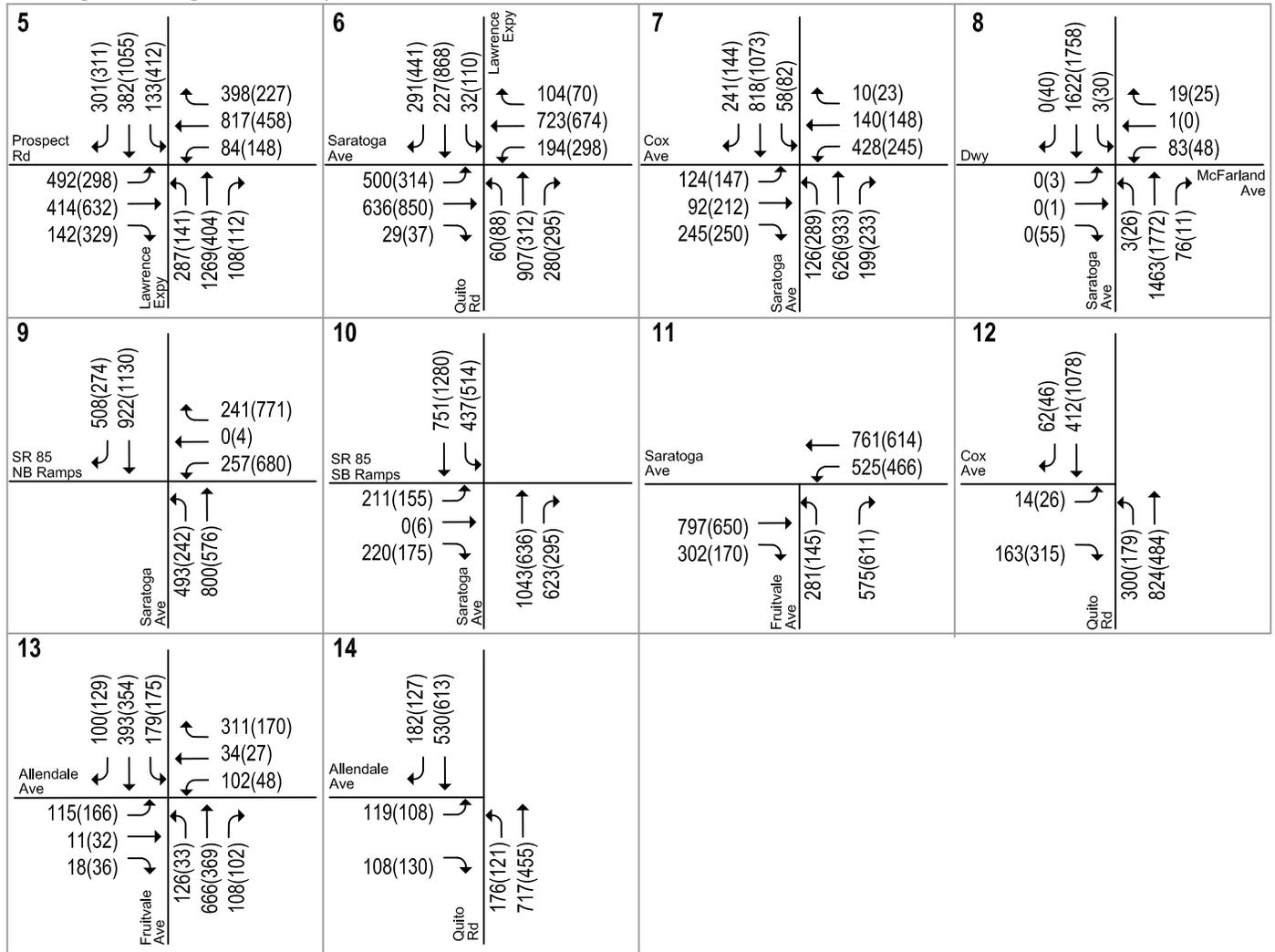


**LEGEND**

- = Stop Sign
- = Traffic Signal

**Figure 4**  
Existing Lane Configurations

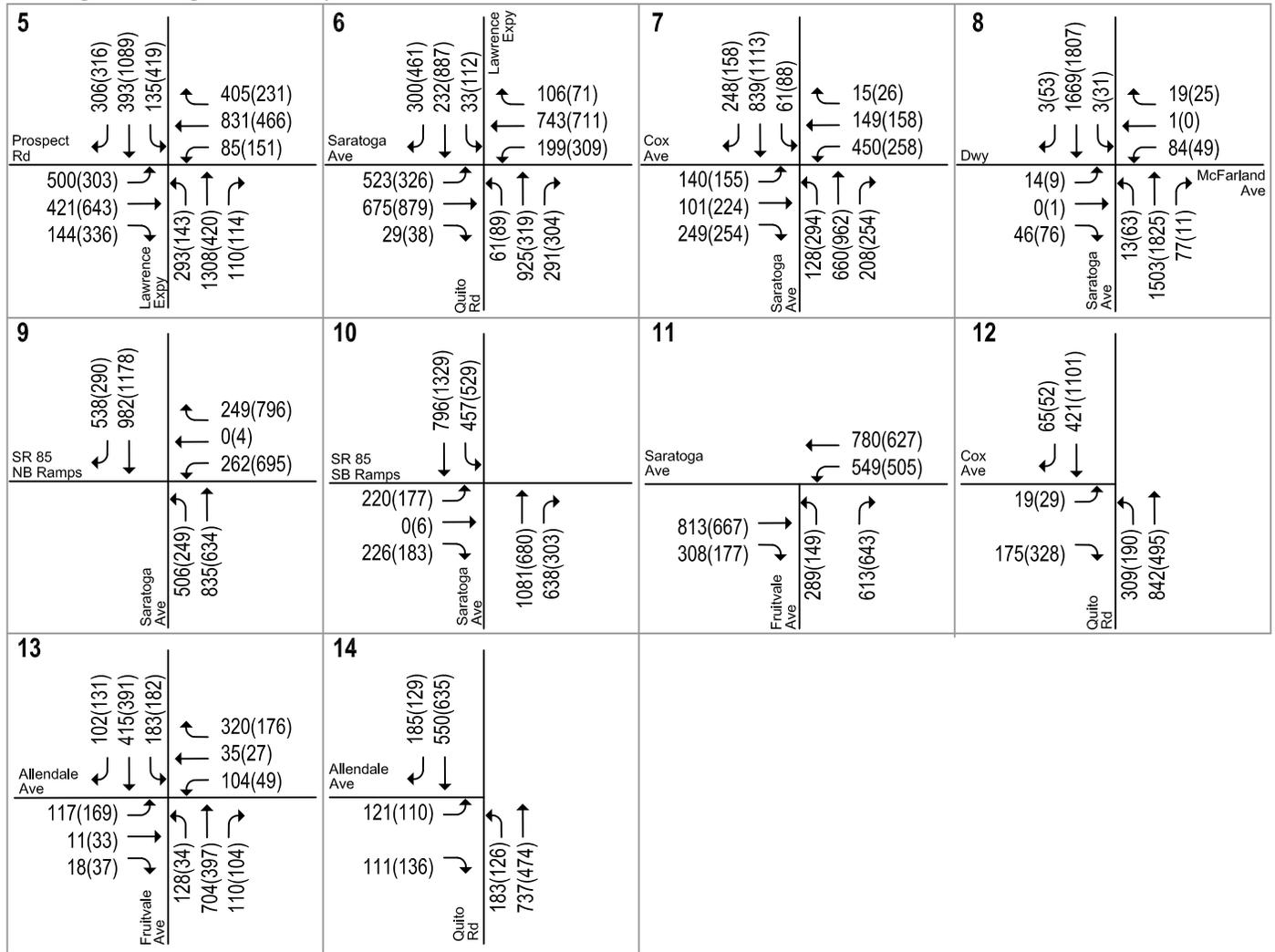
Saratoga Housing Element Update



**LEGEND**  
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

**Figure 5**  
**Existing Traffic Volumes**

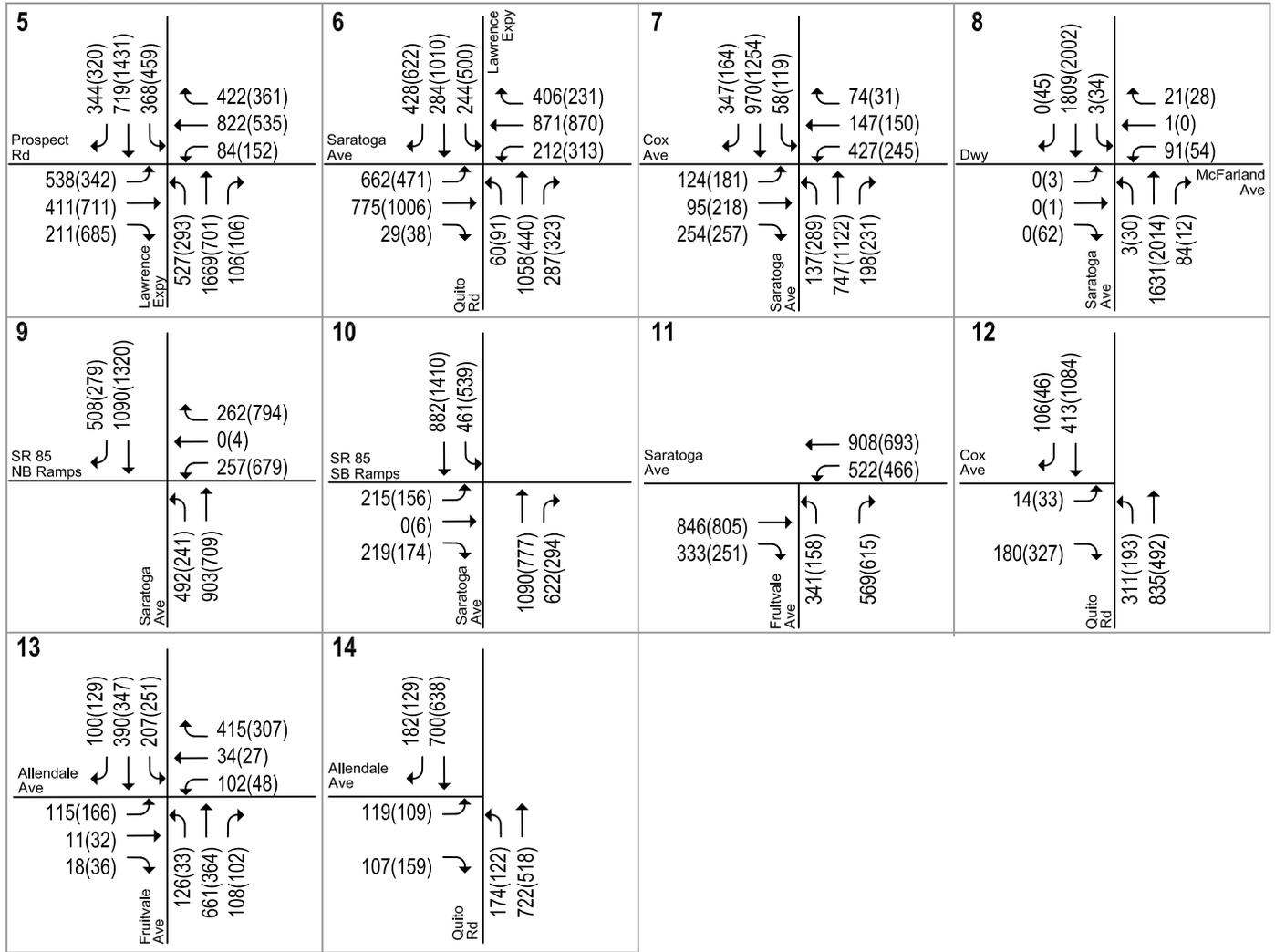
Saratoga Housing Element Update



**LEGEND**  
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 6  
 Existing Plus Project Traffic Volumes

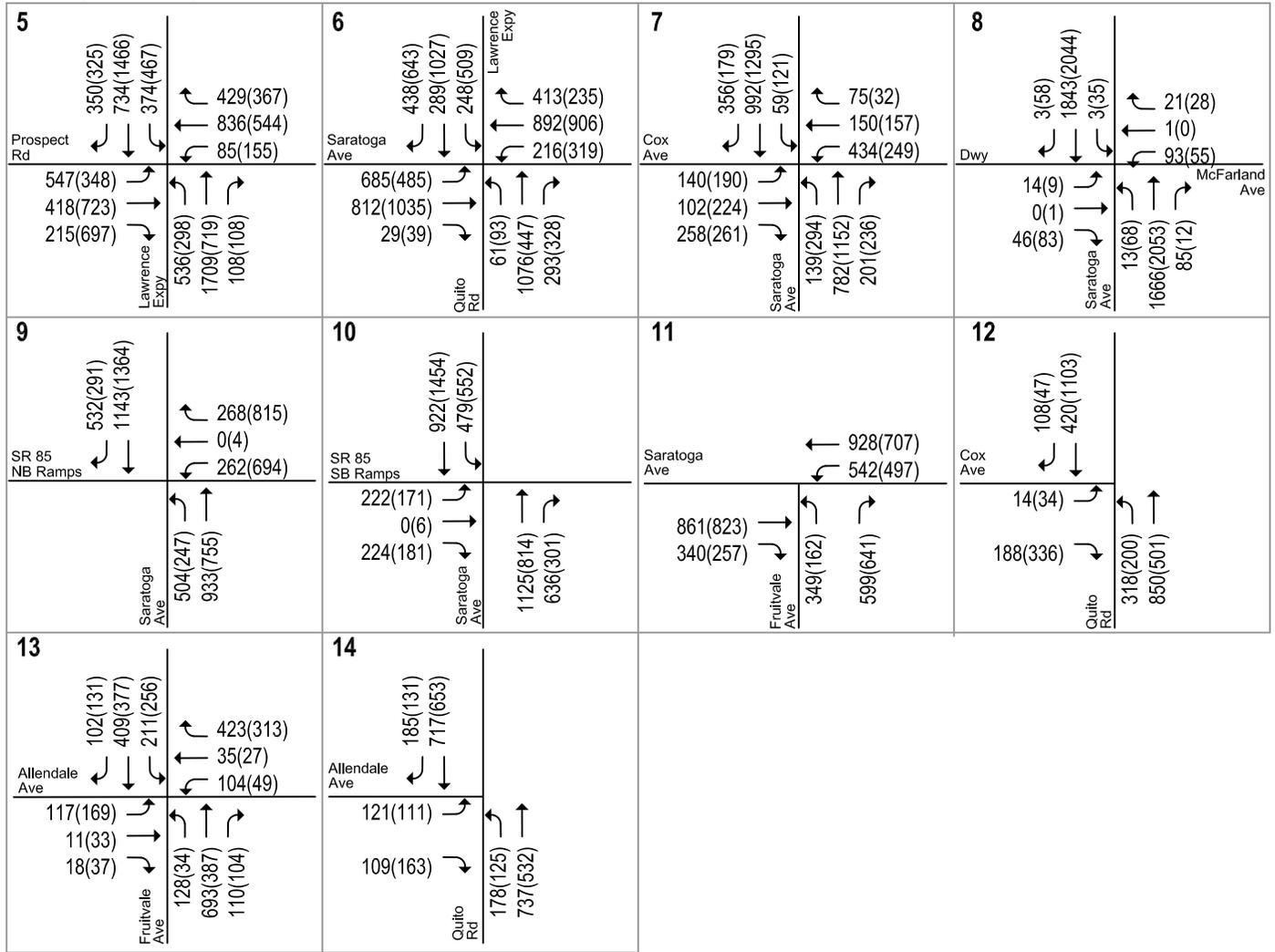
Saratoga Housing Element Update



**LEGEND**  
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

**Figure 7**  
**Cumulative Traffic Volumes**

Saratoga Housing Element Update



**LEGEND**  
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

**Figure 8**  
**Cumulative Plus Project Traffic Volumes**

### **Cumulative Plus Project Traffic Volumes**

The intersection lane configurations under cumulative plus project conditions are assumed to be the same as under cumulative conditions.

Project trips were added to cumulative traffic volumes to obtain cumulative plus project traffic volumes (see Figure 8). The cumulative plus project volumes include all approved and pending Pipeline projects.

### **Traffic Operations at Signalized Intersections**

The results of the intersection level of service analysis are shown in Table 3. The detailed intersection level of service calculation sheets for all study scenarios are included in Appendix C.

### **Existing and Cumulative Conditions**

Intersection levels of service were evaluated against the standards of the CMP and the Cities of Saratoga and San Jose. The results of the analysis show that all the signalized study intersections are operating at acceptable levels of service during the AM and PM peak hours of traffic under existing and cumulative conditions.

### **Project Conditions**

The results of the analysis show that the added project trips would not cause an adverse operations effect at any of the study intersections.

### **Traffic Operations at Unsignalized Intersections**

The study also evaluated two unsignalized intersections: Saratoga Avenue & McFarland Avenue, and Quito Road & Cox Avenue. (The unsignalized intersection of Saratoga-Sunnyvale Road & Kirkmont Drive/Oak Creek Lane was originally considered for analysis, but the project would not add any traffic to the intersection.)

### **Saratoga Avenue & McFarland Avenue Intersection**

The Saratoga Avenue & McFarland Avenue intersection has four approaches and is stop controlled on McFarland Avenue (the westbound approach) and assumed to be stop controlled at the existing driveway (the eastbound approach). During both the AM and PM peak hours, McFarland Avenue is estimated to experience long delays (equivalent to LOS F) under existing and cumulative conditions for the westbound approach. The added project trips on Saratoga Avenue and the eastbound driveway approach would increase the delay for the westbound approach during both the AM and PM peak hours. The peak-hour volume signal warrant analysis described below indicates that the AM peak-hour volumes at the intersection would meet the peak-hour signal warrant under all scenarios, both with and without the project traffic. However, the signal warrant analysis indicates that the PM peak-hour volumes would not meet the signal warrant under any scenario. Hexagon conducted field observations to identify whether there are traffic operational issues at the intersection under current traffic conditions. Several vehicles were observed to have wait times of over one minute while waiting to make a westbound left turn. In addition, vehicles making westbound left turns were observed to cross the northbound lanes, stop in the middle of the intersection between the raised medians, and wait for an opening on southbound Saratoga Avenue. Therefore, since the AM peak-hour volumes at the intersection meet the peak-hour signal warrant under all conditions (both with and without project), it is recommended that the City evaluate the need for signalization or improvement at the intersection.

### **Quito Road & Cox Avenue Intersection**

The Quito Road & Cox Avenue intersection is a T-intersection and is stop controlled on Cox Avenue. During the AM peak hour, Cox Avenue is estimated to operate adequately (equivalent to LOS C and LOS D, respectively) under existing and cumulative conditions. During the PM peak hour, the LOS software shows long delays on Cox Avenue (equivalent to LOS F) under existing and cumulative conditions, and the added project trips on Quito Road and Cox Avenue would further increase the delays. The peak-hour volume signal warrant analysis described below indicates that the AM and PM peak-hour volumes at the intersection would meet the peak-hour signal warrant under all scenarios, both with and without the project traffic. However, based on observations conducted at the intersection for the Quito Village project, the upstream and downstream signal-controlled intersections on Quito Road allow the eastbound traffic to easily find gaps in traffic to make a left or right turn from Cox Avenue onto Quito Road. The eastbound traffic also has the option of using the Quito Road & Bucknall Road intersection. Therefore, a signal is not recommended.

### **Peak-Hour Signal Warrant Analysis**

In conjunction with the traffic operations analysis, a signal warrant analysis was performed to determine if the unsignalized intersections of Saratoga Avenue & McFarland Avenue and Quito Road & Cox Avenue would warrant traffic signals. Unsignalized study intersections are analyzed on the basis of the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the *California Manual on Uniform Traffic Control Devices (MUTCD)*, 2014 Edition. This method provides an indication of whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized intersection level of service analysis and/or operational analysis such as evaluating vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions. The results of the peak-hour signal warrant checks indicate that the AM peak-hour volumes at the unsignalized study intersection of Saratoga Avenue & McFarland Avenue and both AM and PM peak-hour volumes at the unsignalized study intersection of Quito Road & Cox Avenue would warrant signalization under existing, existing plus project, cumulative, and cumulative plus project conditions. The peak-hour signal warrant sheets are contained in Appendix D.

**Table 3  
Signalized Intersection Level of Service Summary**

| #  | Intersection                                         | Peak Hour | Count Date | LOS Std. | Existing Conditions |     | Existing + Project Conditions |     | Cumulative Conditions |     | Cumulative + Project Conditions |     |                      |                    |
|----|------------------------------------------------------|-----------|------------|----------|---------------------|-----|-------------------------------|-----|-----------------------|-----|---------------------------------|-----|----------------------|--------------------|
|    |                                                      |           |            |          | Avg. Delay (sec)    | LOS | Avg. Delay (sec)              | LOS | Avg. Delay (sec)      | LOS | Avg. Delay (sec)                | LOS | In Crit. Delay (sec) | Incr. In Crit. V/C |
| 5  | Lawrence Expressway & Prospect Road (*)              | AM        | 10/03/18   | E        | 47.1                | D   | 47.5                          | D   | 56.1                  | E+  | 57.4                            | E+  | 1.7                  | 0.013              |
|    |                                                      | PM        | 11/15/18   |          | 43.5                | D   | 43.7                          | D   | 48.8                  | D   | 49.1                            | D   | 2.2                  | 0.134              |
| 6  | Lawrence Expressway/Quito Road & Saratoga Avenue (*) | AM        | 10/03/18   | E        | 45.3                | D   | 46.8                          | D   | 50.3                  | D   | 51.1                            | D-  | 1.3                  | 0.017              |
|    |                                                      | PM        | 11/15/18   |          | 45.0                | D   | 45.6                          | D   | 52.9                  | D-  | 53.9                            | D-  | 2.0                  | 0.014              |
| 7  | Saratoga Avenue & Cox Avenue                         | AM        | 05/02/19   | D        | 38.0                | D+  | 38.4                          | D+  | 36.8                  | D+  | 37.0                            | D+  | 0.4                  | 0.012              |
|    |                                                      | PM        | 05/02/19   |          | 41.4                | D   | 42.1                          | D   | 42.3                  | D   | 43.1                            | D   | 1.6                  | 0.022              |
| 9  | Saratoga Avenue & SR 85 NB Ramps                     | AM        | 05/02/19   | D        | 19.5                | B-  | 19.6                          | B-  | 19.6                  | B-  | 19.7                            | B-  | 0.1                  | 0.022              |
|    |                                                      | PM        | 05/02/19   |          | 27.5                | C   | 28.3                          | C   | 28.7                  | C   | 29.7                            | C   | 1.8                  | 0.024              |
| 10 | Saratoga Avenue & SR 85 SB Ramps                     | AM        | 05/02/19   | D        | 17.8                | B   | 18.1                          | B-  | 17.6                  | B   | 17.9                            | B   | 0.4                  | 0.018              |
|    |                                                      | PM        | 05/02/19   |          | 18.4                | B-  | 19.0                          | B-  | 18.1                  | B-  | 18.6                            | B-  | 15.1                 | 0.011              |
| 11 | Fruitvale Avenue & Saratoga Avenue                   | AM        | 10/19/21   | D        | 24.2                | C   | 24.5                          | C   | 25.5                  | C   | 25.9                            | C   | 0.6                  | 0.017              |
|    |                                                      | PM        | 10/19/21   |          | 18.2                | B-  | 18.4                          | B-  | 18.6                  | B-  | 18.8                            | B-  | 0.3                  | 0.019              |
| 13 | Fruitvale Avenue & Allendale Avenue                  | AM        | 02/07/19   | D        | 37.2                | D+  | 37.2                          | D+  | 39.6                  | D   | 39.9                            | D   | 0.6                  | 0.018              |
|    |                                                      | PM        | 02/07/19   |          | 38.0                | D+  | 37.8                          | D+  | 40.2                  | D   | 40.3                            | D   | 0.4                  | 0.016              |
| 14 | Quito Road & Allendale Avenue                        | AM        | 10/19/21   | D        | 14.3                | B   | 15.3                          | B   | 28.3                  | C   | 31.4                            | C   | 5.2                  | 0.017              |
|    |                                                      | PM        | 10/19/21   |          | 12.3                | B   | 12.8                          | B   | 12.6                  | B   | 12.9                            | B   | 0.5                  | 0.014              |

**Notes:**  
\* = CMP

# **Saratoga Housing Element Update Transportation Analysis**

## **Technical Appendices**

November 11, 2022

Appendix A

**Traffic Counts**



(303) 216-2439  
www.alltrafficdata.net

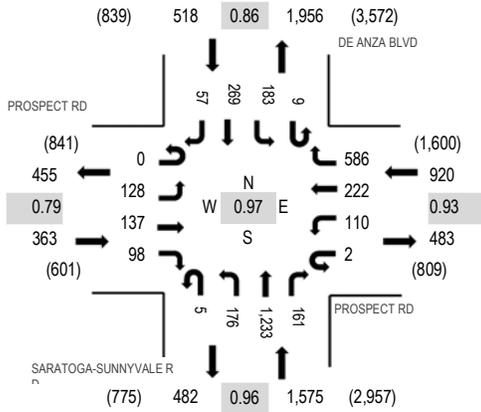
Location: 1 SARATOGA-SUNNYVALE RD & PROSPECT RD AM

Date: Tuesday, October 2, 2018

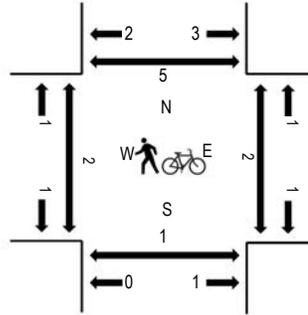
Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | PROSPECT RD<br>Eastbound |      |      |       | PROSPECT RD<br>Westbound |      |      |       | SARATOGA-SUNNYVALE RD<br>Northbound |      |      |       | DE ANZA BLVD<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------------|------|------|-------|--------------------------|------|------|-------|-------------------------------------|------|------|-------|----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                   | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                              | Left | Thru | Right | U-Turn                     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                        | 20   | 9    | 6     | 1                        | 10   | 21   | 76    | 2                                   | 34   | 246  | 14    | 0                          | 12   | 30   | 11    | 492   | 2,693           | 0                    | 1    | 0     | 2     |
| 7:15 AM                | 0                        | 17   | 20   | 11    | 1                        | 10   | 39   | 102   | 0                                   | 45   | 311  | 35    | 0                          | 25   | 39   | 13    | 668   | 3,068           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                        | 31   | 27   | 12    | 5                        | 19   | 46   | 127   | 1                                   | 44   | 282  | 34    | 2                          | 25   | 36   | 13    | 704   | 3,254           | 0                    | 0    | 0     | 2     |
| 7:45 AM                | 0                        | 31   | 35   | 49    | 1                        | 32   | 37   | 127   | 2                                   | 40   | 317  | 31    | 2                          | 29   | 82   | 14    | 829   | 3,376           | 0                    | 0    | 1     | 1     |
| 8:00 AM                | 0                        | 34   | 29   | 17    | 0                        | 23   | 66   | 166   | 1                                   | 52   | 312  | 44    | 1                          | 53   | 54   | 15    | 867   | 3,304           | 1                    | 0    | 0     | 2     |
| 8:15 AM                | 0                        | 33   | 30   | 14    | 1                        | 20   | 77   | 148   | 1                                   | 33   | 304  | 43    | 1                          | 66   | 70   | 13    | 854   |                 | 0                    | 2    | 0     | 1     |
| 8:30 AM                | 0                        | 30   | 43   | 18    | 0                        | 35   | 42   | 145   | 1                                   | 51   | 300  | 43    | 5                          | 35   | 63   | 15    | 826   |                 | 1                    | 0    | 0     | 1     |
| 8:45 AM                | 0                        | 26   | 42   | 17    | 0                        | 36   | 61   | 126   | 3                                   | 47   | 245  | 39    | 5                          | 37   | 61   | 12    | 757   |                 | 0                    | 1    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 2    | 1    | 4     | 0          | 0    | 0     | 0     | 0          | 1    | 3    | 0     | 11    |
| Lights             | 0         | 127  | 137  | 98    | 2         | 106  | 219  | 581   | 5          | 175  | 1,219 | 158   | 9          | 180  | 256  | 56    | 3,328 |
| Mediums            | 0         | 1    | 0    | 0     | 0         | 2    | 2    | 1     | 0          | 1    | 14    | 3     | 0          | 2    | 10   | 1     | 37    |
| Total              | 0         | 128  | 137  | 98    | 2         | 110  | 222  | 586   | 5          | 176  | 1,233 | 161   | 9          | 183  | 269  | 57    | 3,376 |



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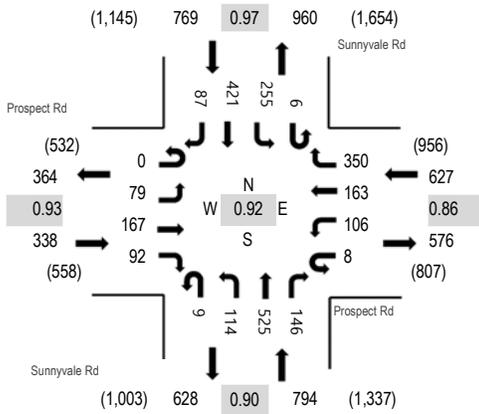
**Location:** 1 Sunnyvale Rd & Prospect Rd AM

**Date:** Tuesday, March 8, 2022

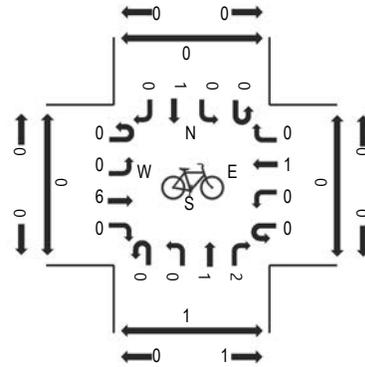
**Peak Hour:** 08:00 AM - 09:00 AM

**Peak 15-Minutes:** 08:30 AM - 08:45 AM

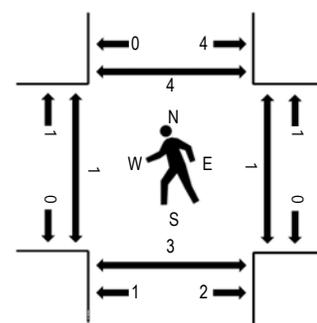
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval Start Time | Prospect Rd Eastbound |      |      |       | Prospect Rd Westbound |      |      |       | Sunnyvale Rd Northbound |      |      |       | Sunnyvale Rd Southbound |      |      |       | Total | Rolling Hour | Pedestrian Crossings |      |       |       |
|---------------------|-----------------------|------|------|-------|-----------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------|--------------|----------------------|------|-------|-------|
|                     | U-Turn                | Left | Thru | Right | U-Turn                | Left | Thru | Right | U-Turn                  | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |              | West                 | East | South | North |
| 7:00 AM             | 0                     | 21   | 10   | 3     | 0                     | 11   | 10   | 27    | 0                       | 10   | 69   | 6     | 0                       | 9    | 30   | 10    | 216   | 1,468        | 0                    | 1    | 1     | 0     |
| 7:15 AM             | 0                     | 14   | 16   | 10    | 2                     | 13   | 12   | 38    | 2                       | 10   | 102  | 11    | 1                       | 20   | 47   | 16    | 314   | 1,832        | 0                    | 0    | 0     | 1     |
| 7:30 AM             | 0                     | 20   | 21   | 9     | 3                     | 24   | 21   | 58    | 1                       | 8    | 113  | 19    | 0                       | 24   | 58   | 11    | 390   | 2,153        | 0                    | 2    | 0     | 2     |
| 7:45 AM             | 0                     | 22   | 40   | 34    | 1                     | 21   | 23   | 65    | 2                       | 27   | 143  | 20    | 1                       | 29   | 110  | 10    | 548   | 2,449        | 0                    | 0    | 0     | 0     |
| 8:00 AM             | 0                     | 21   | 49   | 21    | 1                     | 23   | 28   | 80    | 1                       | 29   | 124  | 26    | 1                       | 55   | 102  | 19    | 580   | 2,528        | 1                    | 1    | 1     | 2     |
| 8:15 AM             | 0                     | 17   | 44   | 25    | 1                     | 19   | 55   | 86    | 3                       | 27   | 130  | 33    | 0                       | 83   | 96   | 16    | 635   |              | 0                    | 0    | 1     | 0     |
| 8:30 AM             | 0                     | 23   | 36   | 25    | 3                     | 28   | 41   | 110   | 3                       | 32   | 147  | 39    | 3                       | 71   | 103  | 22    | 686   |              | 0                    | 0    | 1     | 2     |
| 8:45 AM             | 0                     | 18   | 38   | 21    | 3                     | 36   | 39   | 74    | 2                       | 26   | 124  | 48    | 2                       | 46   | 120  | 30    | 627   |              | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 3    | 0     | 0          | 0    | 2    | 0     | 5     |
| Lights             | 0         | 78   | 166  | 92    | 8         | 106  | 163  | 350   | 9          | 113  | 520  | 146   | 6          | 255  | 415  | 87    | 2,514 |
| Mediums            | 0         | 1    | 1    | 0     | 0         | 0    | 0    | 0     | 0          | 1    | 2    | 0     | 0          | 0    | 4    | 0     | 9     |
| Total              | 0         | 79   | 167  | 92    | 8         | 106  | 163  | 350   | 9          | 114  | 525  | 146   | 6          | 255  | 421  | 87    | 2,528 |



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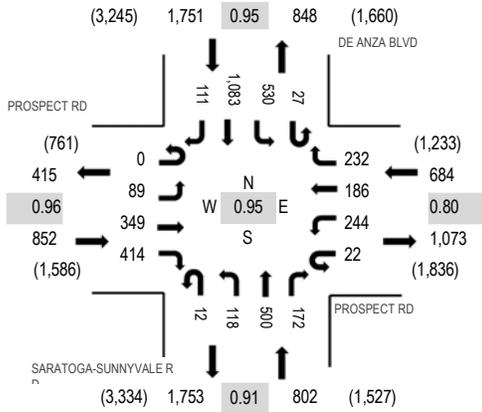
Location: 1 SARATOGA-SUNNYVALE RD & PROSPECT RD PM

Date: Tuesday, October 2, 2018

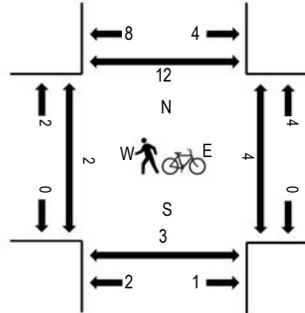
Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:45 PM - 06:00 PM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | PROSPECT RD<br>Eastbound |      |      |       | PROSPECT RD<br>Westbound |      |      |       | SARATOGA-SUNNYVALE RD<br>Northbound |      |      |       | DE ANZA BLVD<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------------|------|------|-------|--------------------------|------|------|-------|-------------------------------------|------|------|-------|----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                   | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                              | Left | Thru | Right | U-Turn                     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                        | 42   | 65   | 95    | 1                        | 42   | 46   | 45    | 2                                   | 22   | 127  | 34    | 5                          | 99   | 240  | 14    | 879   | 3,502           | 0                    | 0    | 1     | 1     |
| 4:15 PM                | 0                        | 36   | 35   | 70    | 0                        | 36   | 36   | 44    | 5                                   | 27   | 114  | 37    | 1                          | 77   | 255  | 28    | 801   | 3,613           | 0                    | 3    | 1     | 3     |
| 4:30 PM                | 0                        | 22   | 73   | 100   | 0                        | 42   | 45   | 64    | 2                                   | 29   | 112  | 39    | 7                          | 112  | 259  | 26    | 932   | 3,802           | 0                    | 2    | 0     | 0     |
| 4:45 PM                | 0                        | 23   | 70   | 103   | 0                        | 61   | 25   | 62    | 2                                   | 28   | 106  | 39    | 2                          | 82   | 267  | 20    | 890   | 3,898           | 0                    | 0    | 2     | 0     |
| 5:00 PM                | 0                        | 21   | 68   | 131   | 0                        | 55   | 43   | 33    | 3                                   | 25   | 135  | 58    | 8                          | 138  | 243  | 29    | 990   | 4,089           | 0                    | 1    | 0     | 0     |
| 5:15 PM                | 0                        | 24   | 96   | 98    | 6                        | 47   | 40   | 59    | 1                                   | 32   | 135  | 33    | 9                          | 127  | 253  | 30    | 990   |                 | 0                    | 3    | 2     | 2     |
| 5:30 PM                | 0                        | 18   | 83   | 91    | 8                        | 59   | 55   | 66    | 2                                   | 35   | 116  | 40    | 3                          | 131  | 297  | 24    | 1,028 |                 | 2                    | 0    | 1     | 1     |
| 5:45 PM                | 0                        | 26   | 102  | 94    | 8                        | 83   | 48   | 74    | 6                                   | 26   | 114  | 41    | 7                          | 134  | 290  | 28    | 1,081 |                 | 0                    | 0    | 0     | 7     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 1    | 0     | 0          | 0    | 0     | 0     | 1     |
| Lights             | 0         | 89   | 345  | 413   | 22        | 244  | 186  | 230   | 12         | 118  | 494  | 172   | 27         | 530  | 1,080 | 110   | 4,072 |
| Mediums            | 0         | 0    | 4    | 1     | 0         | 0    | 0    | 2     | 0          | 0    | 5    | 0     | 0          | 0    | 3     | 1     | 16    |
| Total              | 0         | 89   | 349  | 414   | 22        | 244  | 186  | 232   | 12         | 118  | 500  | 172   | 27         | 530  | 1,083 | 111   | 4,089 |



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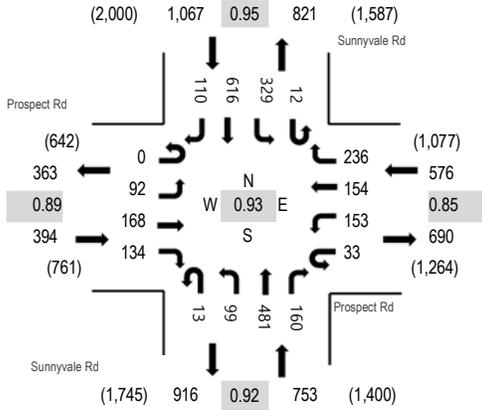
**Location:** 1 Sunnyvale Rd & Prospect Rd PM

**Date:** Tuesday, March 8, 2022

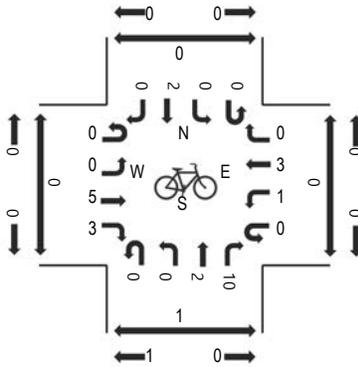
**Peak Hour:** 05:00 PM - 06:00 PM

**Peak 15-Minutes:** 05:45 PM - 06:00 PM

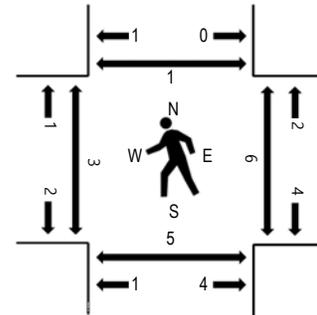
**Peak Hour - Motorized Vehicles**



**Peak Hour - Bicycles**



**Peak Hour - Pedestrians**



Note: Total study counts contained in parentheses.

**Traffic Counts - Motorized Vehicles**

| Interval Start Time | Prospect Rd Eastbound |      |      |       | Prospect Rd Westbound |      |      |       | Sunnyvale Rd Northbound |      |      |       | Sunnyvale Rd Southbound |      |      |       | Total | Rolling Hour | Pedestrian Crossings |      |       |       |
|---------------------|-----------------------|------|------|-------|-----------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------|--------------|----------------------|------|-------|-------|
|                     | U-Turn                | Left | Thru | Right | U-Turn                | Left | Thru | Right | U-Turn                  | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |              | West                 | East | South | North |
| 4:00 PM             | 0                     | 13   | 48   | 23    | 4                     | 35   | 27   | 37    | 6                       | 20   | 120  | 34    | 6                       | 66   | 139  | 18    | 596   | 2,448        | 0                    | 1    | 3     | 2     |
| 4:15 PM             | 0                     | 16   | 31   | 47    | 2                     | 39   | 25   | 56    | 5                       | 20   | 117  | 22    | 6                       | 66   | 151  | 27    | 630   | 2,531        | 1                    | 1    | 5     | 3     |
| 4:30 PM             | 0                     | 25   | 40   | 34    | 7                     | 32   | 20   | 76    | 0                       | 10   | 92   | 36    | 1                       | 71   | 121  | 26    | 591   | 2,594        | 1                    | 1    | 1     | 2     |
| 4:45 PM             | 0                     | 23   | 34   | 33    | 6                     | 31   | 36   | 68    | 2                       | 19   | 102  | 42    | 8                       | 65   | 131  | 31    | 631   | 2,675        | 1                    | 1    | 1     | 1     |
| 5:00 PM             | 0                     | 29   | 36   | 28    | 5                     | 29   | 41   | 54    | 4                       | 23   | 116  | 34    | 2                       | 85   | 154  | 39    | 679   | 2,790        | 0                    | 3    | 2     | 0     |
| 5:15 PM             | 0                     | 14   | 42   | 42    | 12                    | 40   | 46   | 54    | 2                       | 22   | 112  | 45    | 0                       | 75   | 162  | 25    | 693   |              | 1                    | 1    | 1     | 1     |
| 5:30 PM             | 0                     | 19   | 39   | 34    | 7                     | 41   | 30   | 47    | 5                       | 35   | 126  | 39    | 5                       | 78   | 147  | 20    | 672   |              | 2                    | 2    | 2     | 0     |
| 5:45 PM             | 0                     | 30   | 51   | 30    | 9                     | 43   | 37   | 81    | 2                       | 19   | 127  | 42    | 5                       | 91   | 153  | 26    | 746   |              | 0                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 92   | 168  | 134   | 33        | 153  | 154  | 236   | 13         | 99   | 480  | 160   | 12         | 328  | 615  | 110   | 2,787 |
| Mediums            | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 1    | 0     | 0          | 1    | 1    | 0     | 3     |
| Total              | 0         | 92   | 168  | 134   | 33        | 153  | 154  | 236   | 13         | 99   | 481  | 160   | 12         | 329  | 616  | 110   | 2,790 |



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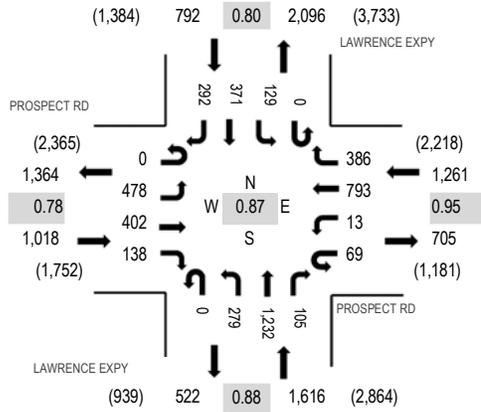
Location: 1 LAWRENCE EXPY & PROSPECT RD AM

Date: Wednesday, October 3, 2018

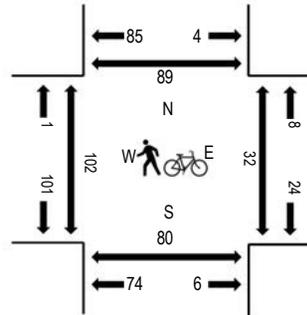
Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | PROSPECT RD<br>Eastbound |      |      |       | PROSPECT RD<br>Westbound |      |      |       | LAWRENCE EXPY<br>Northbound |      |      |       | LAWRENCE EXPY<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------------|------|------|-------|--------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                   | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                        | 74   | 56   | 17    | 9                        | 2    | 97   | 66    | 0                           | 28   | 186  | 8     | 0                           | 9    | 44   | 28    | 624   | 3,875           | 1                    | 2    | 5     | 1     |
| 7:15 AM                | 0                        | 72   | 46   | 12    | 7                        | 1    | 150  | 73    | 0                           | 33   | 303  | 11    | 0                           | 12   | 53   | 39    | 812   | 4,414           | 6                    | 5    | 14    | 6     |
| 7:30 AM                | 0                        | 100  | 95   | 38    | 8                        | 2    | 162  | 89    | 0                           | 81   | 262  | 26    | 0                           | 20   | 108  | 101   | 1,092 | 4,645           | 47                   | 42   | 74    | 36    |
| 7:45 AM                | 0                        | 130  | 155  | 51    | 6                        | 0    | 189  | 94    | 0                           | 111  | 309  | 38    | 0                           | 42   | 91   | 131   | 1,347 | 4,687           | 83                   | 22   | 65    | 77    |
| 8:00 AM                | 0                        | 130  | 112  | 28    | 17                       | 2    | 221  | 81    | 0                           | 64   | 310  | 23    | 0                           | 33   | 87   | 55    | 1,163 | 4,343           | 4                    | 0    | 6     | 3     |
| 8:15 AM                | 0                        | 120  | 66   | 23    | 26                       | 6    | 177  | 108   | 0                           | 54   | 267  | 20    | 0                           | 16   | 90   | 70    | 1,043 |                 | 1                    | 6    | 6     | 4     |
| 8:30 AM                | 0                        | 98   | 69   | 36    | 20                       | 5    | 206  | 103   | 0                           | 50   | 346  | 24    | 0                           | 38   | 103  | 36    | 1,134 |                 | 2                    | 2    | 3     | 1     |
| 8:45 AM                | 0                        | 103  | 85   | 36    | 16                       | 9    | 199  | 67    | 0                           | 38   | 242  | 30    | 0                           | 38   | 95   | 45    | 1,003 |                 | 1                    | 0    | 2     | 3     |

**Peak Rolling Hour Flow Rates**

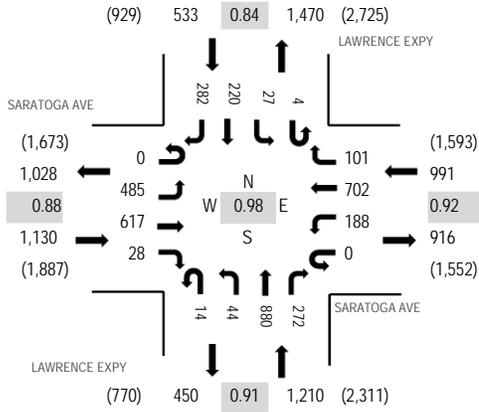
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 1    | 0    | 1     | 0         | 0    | 4    | 0     | 0          | 0    | 3     | 0     | 0          | 1    | 1    | 0     | 11    |
| Lights             | 0         | 475  | 394  | 135   | 69        | 13   | 777  | 383   | 0          | 277  | 1,225 | 103   | 0          | 127  | 363  | 287   | 4,628 |
| Mediums            | 0         | 2    | 8    | 2     | 0         | 0    | 12   | 3     | 0          | 2    | 4     | 2     | 0          | 1    | 7    | 5     | 48    |
| Total              | 0         | 478  | 402  | 138   | 69        | 13   | 793  | 386   | 0          | 279  | 1,232 | 105   | 0          | 129  | 371  | 292   | 4,687 |



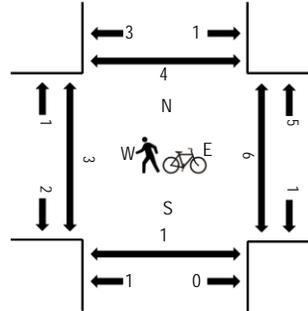
(303) 216-2439  
www.alltrafficdata.net

**Location:** 2 LAWRENCE EXPY & SARATOGA AVE AM  
**Date and Start Time:** Wednesday, October 3, 2018  
**Peak Hour:** 07:45 AM - 08:45 AM  
**Peak 15-Minutes:** 08:15 AM - 08:30 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval Start Time | SARATOGA AVE Eastbound |      |      |       | SARATOGA AVE Westbound |      |      |       | LAWRENCE EXPY Northbound |      |      |       | LAWRENCE EXPY Southbound |      |      |       | Total | Rolling Hour | Pedestrian Crossings |      |       |       |
|---------------------|------------------------|------|------|-------|------------------------|------|------|-------|--------------------------|------|------|-------|--------------------------|------|------|-------|-------|--------------|----------------------|------|-------|-------|
|                     | U-Turn                 | Left | Thru | Right | U-Turn                 | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                   | Left | Thru | Right |       |              | West                 | East | South | North |
| 7:00 AM             | 0                      | 54   | 61   | 2     | 0                      | 14   | 75   | 14    | 0                        | 4    | 162  | 38    | 0                        | 4    | 26   | 32    | 486   | 2,978        | 0                    | 2    | 0     | 0     |
| 7:15 AM             | 0                      | 90   | 83   | 5     | 0                      | 23   | 77   | 9     | 2                        | 10   | 226  | 44    | 0                        | 2    | 35   | 29    | 635   | 3,417        | 2                    | 1    | 1     | 0     |
| 7:30 AM             | 0                      | 84   | 119  | 3     | 0                      | 34   | 125  | 36    | 3                        | 16   | 271  | 60    | 0                        | 0    | 53   | 73    | 877   | 3,770        | 1                    | 0    | 0     | 3     |
| 7:45 AM             | 0                      | 103  | 122  | 11    | 0                      | 45   | 175  | 50    | 1                        | 16   | 223  | 75    | 1                        | 13   | 79   | 66    | 980   | 3,864        | 0                    | 5    | 0     | 3     |
| 8:00 AM             | 0                      | 102  | 160  | 8     | 0                      | 60   | 137  | 21    | 5                        | 14   | 226  | 80    | 3                        | 6    | 39   | 64    | 925   | 3,742        | 0                    | 0    | 0     | 1     |
| 8:15 AM             | 0                      | 154  | 166  | 6     | 0                      | 44   | 203  | 13    | 6                        | 8    | 206  | 60    | 0                        | 4    | 53   | 65    | 988   |              | 0                    | 1    | 0     | 0     |
| 8:30 AM             | 0                      | 126  | 169  | 3     | 0                      | 39   | 187  | 17    | 2                        | 6    | 225  | 57    | 0                        | 4    | 49   | 87    | 971   |              | 1                    | 0    | 0     | 0     |
| 8:45 AM             | 0                      | 107  | 145  | 4     | 0                      | 52   | 123  | 20    | 2                        | 6    | 182  | 75    | 0                        | 5    | 62   | 75    | 858   |              | 1                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

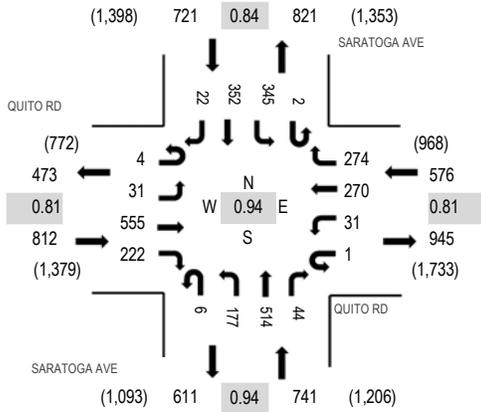
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 2    | 2    | 0     | 0         | 0    | 5    | 0     | 1          | 1    | 0    | 0     | 0          | 0    | 1    | 2     | 14    |
| Lights             | 0         | 480  | 603  | 26    | 0         | 187  | 686  | 101   | 13         | 42   | 875  | 269   | 4          | 27   | 215  | 275   | 3,803 |
| Mediums            | 0         | 3    | 12   | 2     | 0         | 1    | 11   | 0     | 0          | 1    | 5    | 3     | 0          | 0    | 4    | 5     | 47    |
| Total              | 0         | 485  | 617  | 28    | 0         | 188  | 702  | 101   | 14         | 44   | 880  | 272   | 4          | 27   | 220  | 282   | 3,864 |



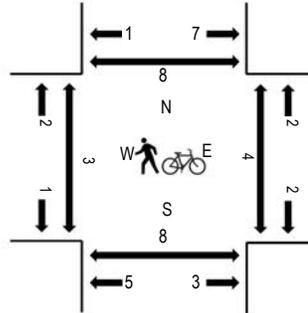
(303) 216-2439  
www.alltrafficdata.net

**Location:** 4 SARATOGA AVE & QUITO RD AM  
**Date:** Tuesday, October 19, 2021  
**Peak Hour:** 07:30 AM - 08:30 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles on Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | QUITO RD<br>Eastbound |      |      |       | QUITO RD<br>Westbound |      |      |       | SARATOGA AVE<br>Northbound |      |      |       | SARATOGA AVE<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------------------|------|------|-------|-----------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                | Left | Thru | Right | U-Turn                | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                     | 2    | 63   | 25    | 0                     | 3    | 24   | 26    | 0                          | 20   | 58   | 8     | 0                          | 70   | 45   | 2     | 346   | 2,343           | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                     | 0    | 127  | 26    | 1                     | 4    | 39   | 54    | 0                          | 19   | 51   | 10    | 0                          | 118  | 50   | 4     | 503   | 2,670           | 0                    | 0    | 1     | 0     |
| 7:30 AM                | 3                     | 4    | 188  | 56    | 1                     | 3    | 56   | 69    | 1                          | 23   | 105  | 14    | 1                          | 117  | 92   | 4     | 737   | 2,850           | 1                    | 1    | 0     | 4     |
| 7:45 AM                | 0                     | 12   | 139  | 39    | 0                     | 7    | 86   | 85    | 0                          | 49   | 138  | 14    | 0                          | 77   | 101  | 10    | 757   | 2,762           | 1                    | 0    | 1     | 0     |
| 8:00 AM                | 0                     | 9    | 114  | 60    | 0                     | 14   | 74   | 64    | 2                          | 55   | 129  | 10    | 0                          | 63   | 74   | 5     | 673   | 2,608           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 1                     | 6    | 114  | 67    | 0                     | 7    | 54   | 56    | 3                          | 50   | 142  | 6     | 1                          | 88   | 85   | 3     | 683   |                 | 0                    | 0    | 1     | 0     |
| 8:30 AM                | 1                     | 5    | 115  | 53    | 0                     | 2    | 61   | 56    | 5                          | 49   | 97   | 9     | 1                          | 93   | 98   | 4     | 649   |                 | 1                    | 0    | 1     | 1     |
| 8:45 AM                | 0                     | 13   | 104  | 33    | 1                     | 10   | 43   | 68    | 3                          | 27   | 100  | 9     | 1                          | 60   | 125  | 6     | 603   |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 5                     | 51   | 964  | 359   | 3                     | 50   | 437  | 478   | 14                         | 292  | 820  | 80    | 4                          | 686  | 670  | 38    | 4,951 |                 | 3                    | 1    | 4     | 5     |
| Peak Hour              | 4                     | 31   | 555  | 222   | 1                     | 31   | 270  | 274   | 6                          | 177  | 514  | 44    | 2                          | 345  | 352  | 22    | 2,850 |                 | 2                    | 1    | 2     | 4     |



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**Location:** 4 SARATOGA AVE & QUITO RD PM

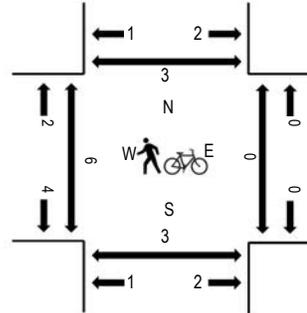
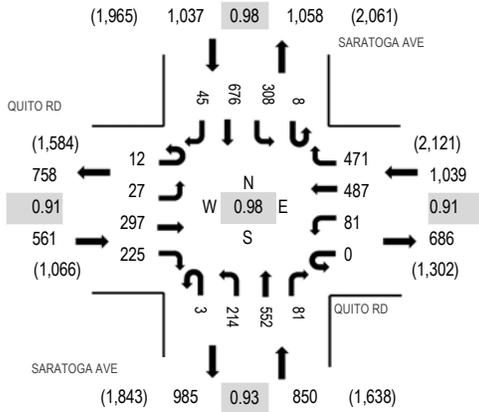
**Date:** Tuesday, October 19, 2021

**Peak Hour:** 04:15 PM - 05:15 PM

**Peak 15-Minutes:** 05:00 PM - 05:15 PM

**Peak Hour - All Vehicles**

**Peak Hour - Pedestrians/Bicycles on Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | QUITO RD<br>Eastbound |      |      |       | QUITO RD<br>Westbound |      |       |       | SARATOGA AVE<br>Northbound |      |       |       | SARATOGA AVE<br>Southbound |      |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------------------|------|------|-------|-----------------------|------|-------|-------|----------------------------|------|-------|-------|----------------------------|------|-------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                | Left | Thru | Right | U-Turn                | Left | Thru  | Right | U-Turn                     | Left | Thru  | Right | U-Turn                     | Left | Thru  | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 4                     | 6    | 56   | 44    | 1                     | 17   | 137   | 117   | 0                          | 56   | 117   | 13    | 3                          | 54   | 157   | 10    | 792   | 3,390           | 2                    | 0    | 0     | 1     |
| 4:15 PM                | 2                     | 3    | 65   | 60    | 0                     | 20   | 104   | 127   | 0                          | 55   | 150   | 20    | 1                          | 75   | 174   | 12    | 868   | 3,487           | 1                    | 0    | 0     | 0     |
| 4:30 PM                | 4                     | 4    | 60   | 54    | 0                     | 21   | 133   | 141   | 3                          | 56   | 125   | 21    | 1                          | 79   | 158   | 14    | 874   | 3,476           | 2                    | 0    | 0     | 1     |
| 4:45 PM                | 5                     | 9    | 80   | 58    | 0                     | 21   | 131   | 102   | 0                          | 46   | 123   | 23    | 4                          | 75   | 168   | 11    | 856   | 3,429           | 2                    | 0    | 0     | 0     |
| 5:00 PM                | 1                     | 11   | 92   | 53    | 0                     | 19   | 119   | 101   | 0                          | 57   | 154   | 17    | 2                          | 79   | 176   | 8     | 889   | 3,400           | 1                    | 0    | 1     | 0     |
| 5:15 PM                | 3                     | 12   | 76   | 35    | 1                     | 26   | 152   | 118   | 0                          | 51   | 153   | 14    | 2                          | 82   | 127   | 5     | 857   |                 | 0                    | 1    | 1     | 0     |
| 5:30 PM                | 7                     | 6    | 78   | 45    | 1                     | 10   | 119   | 108   | 0                          | 34   | 131   | 19    | 5                          | 68   | 184   | 12    | 827   |                 | 1                    | 2    | 1     | 1     |
| 5:45 PM                | 4                     | 9    | 79   | 41    | 1                     | 21   | 149   | 104   | 0                          | 70   | 112   | 18    | 0                          | 55   | 151   | 13    | 827   |                 | 2                    | 0    | 0     | 1     |
| Count Total            | 30                    | 60   | 586  | 390   | 4                     | 155  | 1,044 | 918   | 3                          | 425  | 1,065 | 145   | 18                         | 567  | 1,295 | 85    | 6,790 |                 | 11                   | 3    | 3     | 4     |
| Peak Hour              | 12                    | 27   | 297  | 225   | 0                     | 81   | 487   | 471   | 3                          | 214  | 552   | 81    | 8                          | 308  | 676   | 45    | 3,487 |                 | 6                    | 0    | 1     | 1     |

# AM Peak-Hour Volume Count Worksheet- Saratoga(19DC04)

## AUTO CENSUS

Traffic Monitoring and Analysis

1220 Tasman Dr #316

Sunnyvale, CA 94089

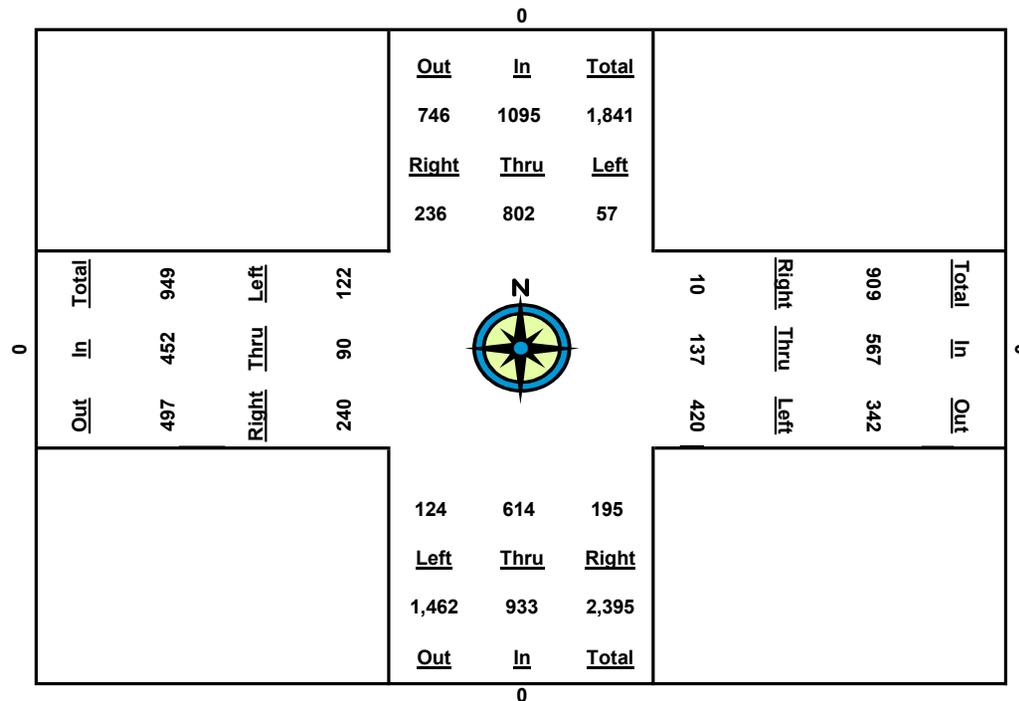
Phone 408-533-3398

Date: Thursday, May 2nd  
 Counter: Jo, Kilbee  
 Intersection Name: Saratoga(N/S) & Cox(E/W)  
 Weather: Fair

| Start Time | North Approach |       |      |       | East Approach |      |      |       | South Approach |       |      |       | West Approach |      |      |       |
|------------|----------------|-------|------|-------|---------------|------|------|-------|----------------|-------|------|-------|---------------|------|------|-------|
|            | Right          | Thru  | Left | Total | Right         | Thru | Left | Total | Right          | Thru  | Left | Total | Right         | Thru | Left | Total |
| 7:00       | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     |
| 7:15       | 15             | 89    | 5    | 109   | 9             | 17   | 77   | 103   | 28             | 48    | 14   | 90    | 32            | 85   | 21   | 138   |
| 7:30       | 41             | 241   | 23   | 305   | 12            | 50   | 181  | 243   | 46             | 143   | 22   | 211   | 67            | 93   | 27   | 187   |
| 7:45       | 76             | 413   | 32   | 521   | 19            | 82   | 248  | 349   | 76             | 271   | 87   | 434   | 123           | 100  | 32   | 255   |
| 8:00       | 128            | 623   | 49   | 800   | 20            | 114  | 256  | 390   | 114            | 460   | 105  | 679   | 184           | 122  | 49   | 355   |
| 8:15       | 208            | 809   | 65   | 1,082 | 22            | 141  | 357  | 520   | 167            | 598   | 142  | 907   | 242           | 148  | 103  | 493   |
| 8:30       | 262            | 1,065 | 80   | 1,407 | 24            | 191  | 425  | 640   | 216            | 741   | 168  | 1,125 | 282           | 164  | 122  | 568   |
| 8:45       | 322            | 1,233 | 87   | 1,642 | 25            | 218  | 593  | 836   | 271            | 943   | 201  | 1,415 | 376           | 186  | 148  | 710   |
| 9:00       | 364            | 1,425 | 106  | 1,895 | 30            | 251  | 676  | 957   | 309            | 1,074 | 229  | 1,612 | 424           | 212  | 171  | 807   |

| Peak Hour            | Right      | Thru       | Left      | Total        | Right     | Thru       | Left       | Total      | Right      | Thru       | Left       | Total      | Right      | Thru      | Left       | Total      | PK Hour      |
|----------------------|------------|------------|-----------|--------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|------------|--------------|
| 7:00 - 8:00          | 128        | 623        | 49        | 800          | 20        | 114        | 256        | 390        | 114        | 460        | 105        | 679        | 184        | 122       | 49         | 355        | 2,224        |
| 7:15 - 8:15          | 193        | 720        | 60        | 973          | 13        | 124        | 280        | 417        | 139        | 550        | 128        | 817        | 210        | 63        | 82         | 355        | 2,562        |
| 7:30 - 8:30          | 221        | 824        | 57        | 1,102        | 12        | 141        | 244        | 397        | 170        | 598        | 146        | 914        | 215        | 71        | 95         | 381        | 2,794        |
| 7:45 - 8:45          | 246        | 820        | 55        | 1,121        | 6         | 136        | 345        | 487        | 195        | 672        | 114        | 981        | 253        | 86        | 116        | 455        | 3,044        |
| 8:00 - 9:00          | 236        | 802        | 57        | 1,095        | 10        | 137        | 420        | 567        | 195        | 614        | 124        | 933        | 240        | 90        | 122        | 452        | 3,047        |
| <b>Peak Volumes:</b> | <b>236</b> | <b>802</b> | <b>57</b> | <b>1,095</b> | <b>10</b> | <b>137</b> | <b>420</b> | <b>567</b> | <b>195</b> | <b>614</b> | <b>124</b> | <b>933</b> | <b>240</b> | <b>90</b> | <b>122</b> | <b>452</b> | <b>3,047</b> |

| Cut and Paste | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|               | 124 | 614 | 195 | 57  | 802 | 236 | 122 | 90  | 240 | 420 | 137 | 10  |



# PM Peak-Hour Volume Count Worksheet- Saratoga(19DC04)

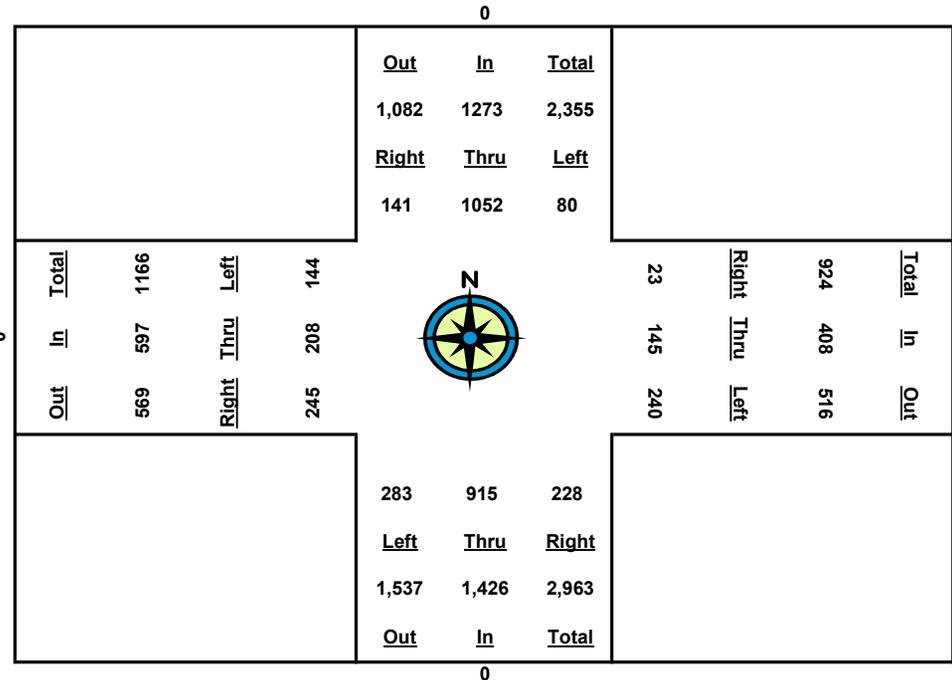
**AUTO CENSUS**  
 Traffic Monitoring and Analysis  
 1220 Tasman Dr. #316  
 Sunnyvale, CA 94089  
 Phone 408-533-3398

Date: Thursday, May 2nd  
 Counter: Jo, Kilbee  
 Intersection Name: Saratoga(N/S) & Cox(E/W)  
 Weather: Fair

| Start Time | North Approach |       |      |       | East Approach |      |      |       | South Approach |       |      |       | West Approach |      |      |       |
|------------|----------------|-------|------|-------|---------------|------|------|-------|----------------|-------|------|-------|---------------|------|------|-------|
|            | Right          | Thru  | Left | Total | Right         | Thru | Left | Total | Right          | Thru  | Left | Total | Right         | Thru | Left | Total |
| 4:00       | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     |
| 4:15       | 42             | 270   | 12   | 324   | 6             | 23   | 26   | 55    | 74             | 207   | 81   | 362   | 73            | 43   | 49   | 165   |
| 4:30       | 60             | 560   | 30   | 650   | 8             | 60   | 93   | 161   | 117            | 406   | 139  | 662   | 122           | 87   | 75   | 284   |
| 4:45       | 87             | 827   | 57   | 971   | 17            | 76   | 161  | 254   | 170            | 614   | 213  | 997   | 192           | 134  | 114  | 440   |
| 5:00       | 113            | 999   | 84   | 1,196 | 19            | 117  | 206  | 342   | 232            | 810   | 300  | 1,342 | 246           | 175  | 146  | 567   |
| 5:15       | 158            | 1,304 | 102  | 1,564 | 34            | 154  | 274  | 462   | 273            | 1,084 | 334  | 1,691 | 318           | 230  | 188  | 736   |
| 5:30       | 190            | 1,556 | 125  | 1,871 | 36            | 195  | 344  | 575   | 335            | 1,292 | 405  | 2,032 | 371           | 280  | 231  | 882   |
| 5:45       | 228            | 1,879 | 137  | 2,244 | 40            | 221  | 401  | 662   | 398            | 1,529 | 496  | 2,423 | 437           | 342  | 258  | 1,037 |
| 6:00       | 251            | 2,043 | 159  | 2,453 | 48            | 243  | 434  | 725   | 432            | 1,637 | 531  | 2,600 | 465           | 373  | 269  | 1,107 |

| Peak Hour            | Right      | Thru         | Left      | Total        | Right     | Thru       | Left       | Total      | Right      | Thru       | Left       | Total        | Right      | Thru       | Left       | Total      | PK Hour      |
|----------------------|------------|--------------|-----------|--------------|-----------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|------------|------------|--------------|
| 4:00 - 5:00          | 113        | 999          | 84        | 1,196        | 19        | 117        | 206        | 342        | 232        | 810        | 300        | 1,342        | 246        | 175        | 146        | 567        | 3,447        |
| 4:15 - 5:15          | 116        | 1,034        | 90        | 1,240        | 28        | 131        | 248        | 407        | 199        | 877        | 253        | 1,329        | 245        | 187        | 139        | 571        | 3,547        |
| 4:30 - 5:30          | 130        | 996          | 95        | 1,221        | 28        | 135        | 251        | 414        | 218        | 886        | 266        | 1,370        | 249        | 193        | 156        | 598        | 3,603        |
| 4:45 - 5:45          | 141        | 1,052        | 80        | 1,273        | 23        | 145        | 240        | 408        | 228        | 915        | 283        | 1,426        | 245        | 208        | 144        | 597        | 3,704        |
| 5:00 - 6:00          | 138        | 1,044        | 75        | 1,257        | 29        | 126        | 228        | 383        | 200        | 827        | 231        | 1,258        | 219        | 198        | 123        | 540        | 3,438        |
| <b>Peak Volumes:</b> | <b>141</b> | <b>1,052</b> | <b>80</b> | <b>1,273</b> | <b>23</b> | <b>145</b> | <b>240</b> | <b>408</b> | <b>228</b> | <b>915</b> | <b>283</b> | <b>1,426</b> | <b>245</b> | <b>208</b> | <b>144</b> | <b>597</b> | <b>3,704</b> |

| Cut and Paste | NBL | NBT | NBR | SBL | SBT   | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
|---------------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|
|               | 283 | 915 | 228 | 80  | 1,052 | 141 | 144 | 208 | 245 | 240 | 145 | 23  |





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Location: 5 SARATOGA AVE & MCFARLAND AVE AM

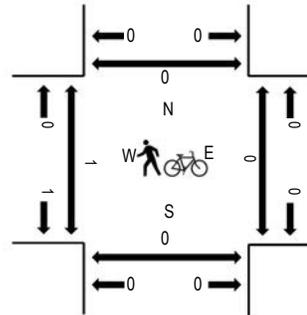
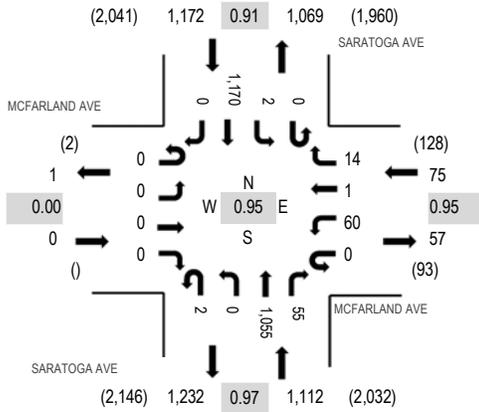
Date: Tuesday, October 19, 2021

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

| Interval<br>Start Time | MCFARLAND AVE<br>Eastbound |      |      |       | MCFARLAND AVE<br>Westbound |      |      |       | SARATOGA AVE<br>Northbound |      |       |       | SARATOGA AVE<br>Southbound |      |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|----------------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|-------|-------|----------------------------|------|-------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru  | Right | U-Turn                     | Left | Thru  | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                          | 0    | 0    | 0     | 0                          | 8    | 0    | 1     | 1                          | 0    | 142   | 8     | 0                          | 0    | 174   | 0     | 334   | 1,930           | 4                    | 1    | 0     | 0     |
| 7:15 AM                | 0                          | 0    | 0    | 0     | 0                          | 7    | 0    | 0     | 0                          | 0    | 255   | 2     | 0                          | 0    | 177   | 0     | 441   | 2,191           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                          | 0    | 0    | 0     | 0                          | 18   | 0    | 2     | 0                          | 0    | 246   | 11    | 0                          | 0    | 259   | 0     | 536   | 2,332           | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                          | 0    | 0    | 0     | 0                          | 15   | 0    | 4     | 0                          | 0    | 263   | 14    | 0                          | 0    | 323   | 0     | 619   | 2,359           | 1                    | 0    | 0     | 0     |
| 8:00 AM                | 0                          | 0    | 0    | 0     | 0                          | 13   | 1    | 4     | 0                          | 0    | 272   | 13    | 0                          | 0    | 292   | 0     | 595   | 2,271           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                          | 0    | 0    | 0     | 0                          | 18   | 0    | 1     | 1                          | 0    | 247   | 15    | 0                          | 1    | 299   | 0     | 582   |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                          | 0    | 0    | 0     | 0                          | 14   | 0    | 5     | 1                          | 0    | 273   | 13    | 0                          | 1    | 256   | 0     | 563   |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                          | 0    | 0    | 0     | 0                          | 14   | 0    | 3     | 2                          | 0    | 241   | 12    | 1                          | 3    | 254   | 1     | 531   |                 | 1                    | 1    | 0     | 0     |
| Count Total            | 0                          | 0    | 0    | 0     | 0                          | 107  | 1    | 20    | 5                          | 0    | 1,939 | 88    | 1                          | 5    | 2,034 | 1     | 4,201 |                 | 6                    | 2    | 0     | 0     |
| Peak Hour              | 0                          | 0    | 0    | 0     | 0                          | 60   | 1    | 14    | 2                          | 0    | 1,055 | 55    | 0                          | 2    | 1,170 | 0     | 2,359 |                 | 1                    | 0    | 0     | 0     |



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Location: 5 SARATOGA AVE & MCFARLAND AVE PM

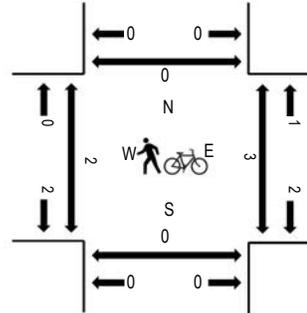
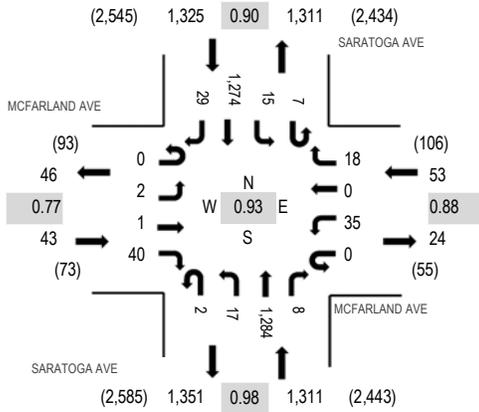
Date: Tuesday, October 19, 2021

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

| Interval<br>Start Time | MCFARLAND AVE<br>Eastbound |      |      |       | MCFARLAND AVE<br>Westbound |      |      |       | SARATOGA AVE<br>Northbound |      |       |       | SARATOGA AVE<br>Southbound |      |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|----------------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|-------|-------|----------------------------|------|-------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru  | Right | U-Turn                     | Left | Thru  | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                          | 0    | 0    | 4     | 0                          | 10   | 0    | 7     | 1                          | 5    | 273   | 7     | 0                          | 2    | 299   | 6     | 614   | 2,586           | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                          | 0    | 0    | 9     | 0                          | 5    | 0    | 4     | 0                          | 2    | 295   | 3     | 2                          | 3    | 314   | 10    | 647   | 2,703           | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                          | 0    | 1    | 4     | 0                          | 11   | 0    | 1     | 0                          | 5    | 322   | 4     | 1                          | 4    | 286   | 10    | 649   | 2,732           | 0                    | 1    | 0     | 0     |
| 4:45 PM                | 0                          | 1    | 0    | 10    | 0                          | 6    | 0    | 6     | 0                          | 3    | 317   | 3     | 3                          | 4    | 316   | 7     | 676   | 2,704           | 2                    | 1    | 0     | 0     |
| 5:00 PM                | 0                          | 1    | 0    | 11    | 0                          | 8    | 0    | 5     | 2                          | 4    | 329   | 0     | 2                          | 2    | 363   | 4     | 731   | 2,581           | 0                    | 1    | 0     | 0     |
| 5:15 PM                | 0                          | 0    | 0    | 15    | 0                          | 10   | 0    | 6     | 0                          | 5    | 316   | 1     | 1                          | 5    | 309   | 8     | 676   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                          | 1    | 0    | 7     | 0                          | 9    | 0    | 3     | 0                          | 3    | 282   | 1     | 1                          | 3    | 302   | 9     | 621   |                 | 1                    | 0    | 0     | 0     |
| 5:45 PM                | 0                          | 1    | 0    | 8     | 0                          | 12   | 0    | 3     | 0                          | 3    | 251   | 6     | 0                          | 6    | 254   | 9     | 553   |                 | 0                    | 1    | 0     | 0     |
| Count Total            | 0                          | 4    | 1    | 68    | 0                          | 71   | 0    | 35    | 3                          | 30   | 2,385 | 25    | 10                         | 29   | 2,443 | 63    | 5,167 |                 | 3                    | 4    | 0     | 0     |
| Peak Hour              | 0                          | 2    | 1    | 40    | 0                          | 35   | 0    | 18    | 2                          | 17   | 1,284 | 8     | 7                          | 15   | 1,274 | 29    | 2,732 |                 | 2                    | 3    | 0     | 0     |



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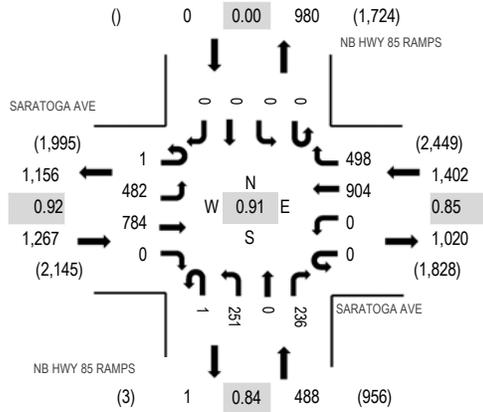
Location: 1 NB HWY 85 RAMPS & SARATOGA AVE AM

Date: Thursday, May 2, 2019

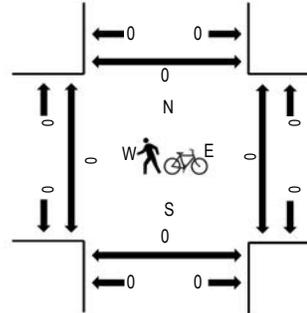
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | SARATOGA AVE<br>Eastbound |      |      |       | SARATOGA AVE<br>Westbound |      |      |       | NB HWY 85 RAMPS<br>Northbound |      |      |       | NB HWY 85 RAMPS<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                         | 90   | 90   | 0     | 0                         | 0    | 115  | 106   | 0                             | 31   | 1    | 76    | 0                             | 0    | 0    | 0     | 509   | 2,564           | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                         | 96   | 104  | 0     | 0                         | 0    | 122  | 106   | 0                             | 49   | 1    | 50    | 0                             | 0    | 0    | 0     | 528   | 2,923           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                         | 104  | 175  | 0     | 0                         | 0    | 196  | 118   | 0                             | 62   | 0    | 56    | 0                             | 0    | 0    | 0     | 711   | 3,157           | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                         | 125  | 180  | 0     | 0                         | 0    | 255  | 128   | 0                             | 71   | 0    | 57    | 0                             | 0    | 0    | 0     | 816   | 3,105           | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 1                         | 125  | 217  | 0     | 0                         | 0    | 264  | 147   | 0                             | 60   | 0    | 54    | 0                             | 0    | 0    | 0     | 868   | 2,986           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                         | 128  | 212  | 0     | 0                         | 0    | 189  | 105   | 1                             | 58   | 0    | 69    | 0                             | 0    | 0    | 0     | 762   |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                         | 77   | 201  | 0     | 0                         | 0    | 185  | 85    | 0                             | 40   | 0    | 71    | 0                             | 0    | 0    | 0     | 659   |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                         | 78   | 142  | 0     | 0                         | 0    | 224  | 104   | 2                             | 73   | 0    | 74    | 0                             | 0    | 0    | 0     | 697   |                 | 0                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 1    | 0    | 0     | 0          | 0    | 0    | 0     | 1     |
| Bicycles on Road   | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 1         | 474  | 779  | 0     | 0         | 0    | 889  | 497   | 1          | 247  | 0    | 232   | 0          | 0    | 0    | 0     | 3,120 |
| Mediums            | 0         | 8    | 5    | 0     | 0         | 0    | 15   | 1     | 0          | 3    | 0    | 4     | 0          | 0    | 0    | 0     | 36    |
| Total              | 1         | 482  | 784  | 0     | 0         | 0    | 904  | 498   | 1          | 251  | 0    | 236   | 0          | 0    | 0    | 0     | 3,157 |



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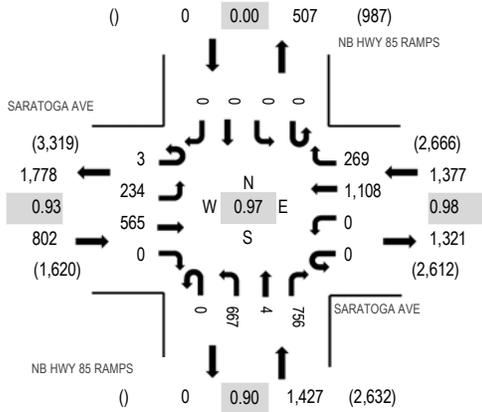
Location: 1 NB HWY 85 RAMPS & SARATOGA AVE PM

Date: Wednesday, May 1, 2019

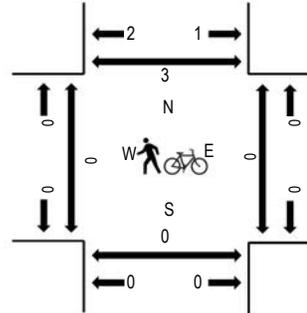
Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | SARATOGA AVE<br>Eastbound |      |      |       | SARATOGA AVE<br>Westbound |      |      |       | NB HWY 85 RAMPS<br>Northbound |      |      |       | NB HWY 85 RAMPS<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                         | 55   | 166  | 0     | 0                         | 0    | 252  | 62    | 0                             | 131  | 2    | 148   | 0                             | 0    | 0    | 0     | 816   | 3,312           | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 1                         | 53   | 142  | 0     | 0                         | 0    | 269  | 77    | 0                             | 122  | 1    | 171   | 0                             | 0    | 0    | 0     | 836   | 3,383           | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 1                         | 65   | 148  | 0     | 0                         | 0    | 250  | 51    | 0                             | 118  | 2    | 176   | 0                             | 0    | 0    | 0     | 811   | 3,480           | 0                    | 0    | 0     | 2     |
| 4:45 PM                | 0                         | 47   | 140  | 0     | 0                         | 0    | 263  | 65    | 0                             | 134  | 0    | 200   | 0                             | 0    | 0    | 0     | 849   | 3,541           | 0                    | 0    | 1     | 0     |
| 5:00 PM                | 1                         | 67   | 136  | 0     | 0                         | 0    | 269  | 76    | 0                             | 148  | 2    | 188   | 0                             | 0    | 0    | 0     | 887   | 3,606           | 0                    | 0    | 0     | 2     |
| 5:15 PM                | 0                         | 56   | 147  | 0     | 0                         | 0    | 275  | 59    | 0                             | 190  | 1    | 205   | 0                             | 0    | 0    | 0     | 933   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                         | 54   | 124  | 0     | 0                         | 0    | 277  | 68    | 0                             | 150  | 1    | 198   | 0                             | 0    | 0    | 0     | 872   |                 | 0                    | 0    | 0     | 1     |
| 5:45 PM                | 2                         | 57   | 158  | 0     | 0                         | 0    | 287  | 66    | 0                             | 179  | 0    | 165   | 0                             | 0    | 0    | 0     | 914   |                 | 0                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 1     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 1     |
| Bicycles on Road   | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 2         | 232  | 562  | 0     | 0         | 0    | 1,100 | 267   | 0          | 666  | 4    | 753   | 0          | 0    | 0    | 0     | 3,586 |
| Mediums            | 1         | 2    | 3    | 0     | 0         | 0    | 7     | 2     | 0          | 1    | 0    | 3     | 0          | 0    | 0    | 0     | 19    |
| Total              | 3         | 234  | 565  | 0     | 0         | 0    | 1,108 | 269   | 0          | 667  | 4    | 756   | 0          | 0    | 0    | 0     | 3,606 |



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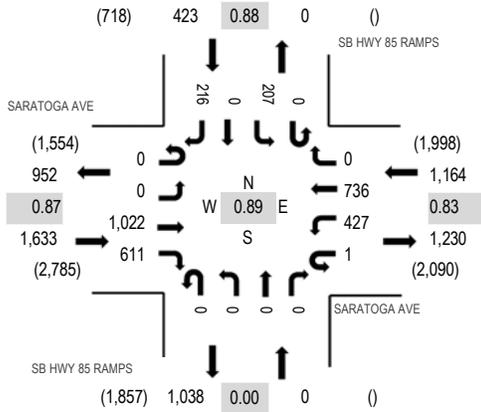
Location: 2 SB HWY 85 RAMPS & SARATOGA AVE AM

Date: Thursday, May 2, 2019

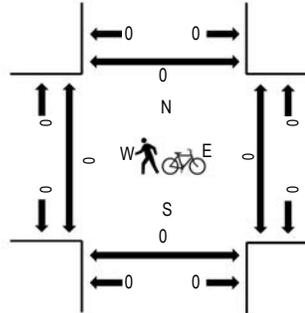
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 08:00 AM - 08:15 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | SARATOGA AVE<br>Eastbound |      |      |       | SARATOGA AVE<br>Westbound |      |      |       | SB HWY 85 RAMPS<br>Northbound |      |      |       | SB HWY 85 RAMPS<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                         | 0    | 149  | 77    | 0                         | 61   | 77   | 0     | 0                             | 0    | 0    | 0     | 0                             | 21   | 0    | 32    | 417   | 2,405           | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                         | 0    | 165  | 98    | 0                         | 74   | 100  | 0     | 0                             | 0    | 0    | 0     | 0                             | 24   | 0    | 32    | 493   | 2,896           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                         | 0    | 206  | 113   | 0                         | 91   | 179  | 0     | 0                             | 0    | 0    | 0     | 0                             | 47   | 0    | 54    | 690   | 3,220           | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                         | 0    | 243  | 143   | 0                         | 109  | 190  | 0     | 0                             | 0    | 0    | 0     | 0                             | 63   | 0    | 57    | 805   | 3,208           | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                         | 0    | 277  | 174   | 0                         | 119  | 233  | 0     | 0                             | 0    | 0    | 0     | 0                             | 50   | 0    | 55    | 908   | 3,096           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                         | 0    | 296  | 181   | 1                         | 108  | 134  | 0     | 0                             | 0    | 0    | 0     | 0                             | 47   | 0    | 50    | 817   |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                         | 0    | 211  | 138   | 0                         | 123  | 117  | 0     | 0                             | 0    | 0    | 0     | 0                             | 55   | 0    | 34    | 678   |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                         | 0    | 190  | 124   | 0                         | 124  | 158  | 0     | 0                             | 0    | 0    | 0     | 0                             | 45   | 0    | 52    | 693   |                 | 0                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |       |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|-------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru  | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 2     | 2     | 0         | 0    | 1    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 1     | 6     |
| Bicycles on Road   | 0         | 0    | 0     | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 0    | 1,010 | 609   | 1         | 424  | 721  | 0     | 0          | 0    | 0    | 0     | 0          | 204  | 0    | 210   | 3,179 |
| Mediums            | 0         | 0    | 10    | 0     | 0         | 3    | 14   | 0     | 0          | 0    | 0    | 0     | 0          | 3    | 0    | 5     | 35    |
| Total              | 0         | 0    | 1,022 | 611   | 1         | 427  | 736  | 0     | 0          | 0    | 0    | 0     | 0          | 207  | 0    | 216   | 3,220 |



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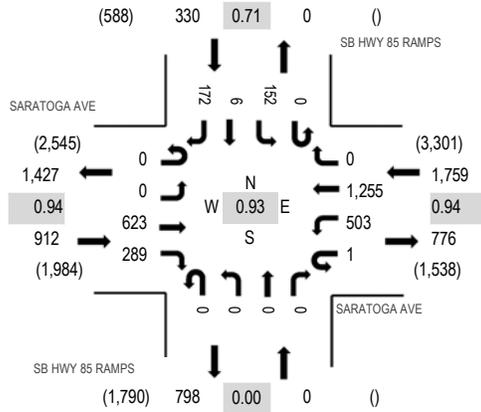
Location: 2 SB HWY 85 RAMPS & SARATOGA AVE PM

Date: Wednesday, May 1, 2019

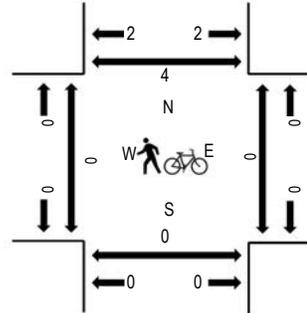
Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:45 PM - 06:00 PM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | SARATOGA AVE<br>Eastbound |      |      |       | SARATOGA AVE<br>Westbound |      |      |       | SB HWY 85 RAMPS<br>Northbound |      |      |       | SB HWY 85 RAMPS<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                         | 0    | 174  | 111   | 1                         | 136  | 254  | 0     | 0                             | 0    | 0    | 0     | 0                             | 29   | 0    | 38    | 743   | 2,872           | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                         | 0    | 146  | 106   | 0                         | 145  | 238  | 0     | 0                             | 0    | 0    | 0     | 0                             | 40   | 0    | 35    | 710   | 2,881           | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                         | 0    | 160  | 114   | 0                         | 134  | 234  | 0     | 0                             | 0    | 0    | 0     | 0                             | 34   | 1    | 19    | 696   | 2,918           | 0                    | 0    | 0     | 2     |
| 4:45 PM                | 0                         | 0    | 151  | 110   | 1                         | 135  | 264  | 0     | 0                             | 0    | 0    | 0     | 0                             | 26   | 0    | 36    | 723   | 2,917           | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                         | 0    | 174  | 78    | 0                         | 146  | 282  | 0     | 0                             | 0    | 0    | 0     | 0                             | 27   | 0    | 45    | 752   | 3,001           | 0                    | 0    | 0     | 2     |
| 5:15 PM                | 0                         | 0    | 157  | 77    | 0                         | 131  | 318  | 0     | 0                             | 0    | 0    | 0     | 0                             | 31   | 1    | 32    | 747   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                         | 0    | 138  | 64    | 1                         | 115  | 300  | 0     | 0                             | 0    | 0    | 0     | 0                             | 35   | 1    | 41    | 695   |                 | 0                    | 0    | 0     | 2     |
| 5:45 PM                | 0                         | 0    | 154  | 70    | 0                         | 111  | 355  | 0     | 0                             | 0    | 0    | 0     | 0                             | 59   | 4    | 54    | 807   |                 | 0                    | 0    | 0     | 0     |

**Peak Rolling Hour Flow Rates**

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Bicycles on Road   | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 0    | 614  | 286   | 1         | 501  | 1,248 | 0     | 0          | 0    | 0    | 0     | 0          | 151  | 6    | 169   | 2,976 |
| Mediums            | 0         | 0    | 9    | 3     | 0         | 2    | 7     | 0     | 0          | 0    | 0    | 0     | 0          | 1    | 0    | 3     | 25    |
| Total              | 0         | 0    | 623  | 289   | 1         | 503  | 1,255 | 0     | 0          | 0    | 0    | 0     | 0          | 152  | 6    | 172   | 3,001 |



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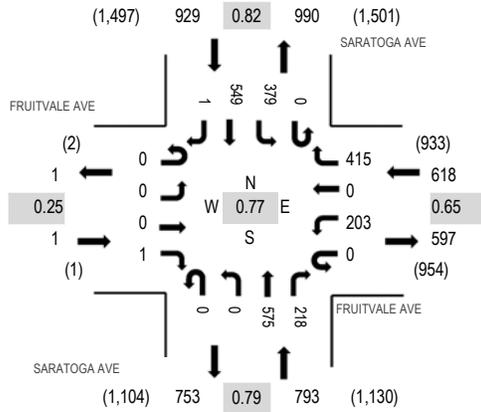
**Location:** 6 SARATOGA AVE & FRUITVALE AVE AM

**Date:** Tuesday, October 19, 2021

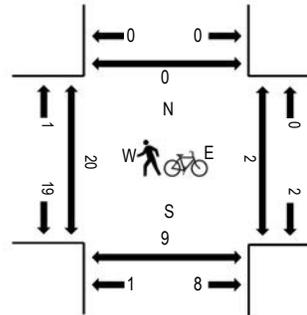
**Peak Hour:** 07:45 AM - 08:45 AM

**Peak 15-Minutes:** 08:00 AM - 08:15 AM

**Peak Hour - All Vehicles**



**Peak Hour - Pedestrians/Bicycles on Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval Start Time | FRUITVALE AVE Eastbound |      |      |       | FRUITVALE AVE Westbound |      |      |       | SARATOGA AVE Northbound |      |      |       | SARATOGA AVE Southbound |      |      |       | Total | Rolling Hour | Pedestrian Crossings |      |       |       |
|---------------------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------|--------------|----------------------|------|-------|-------|
|                     | U-Turn                  | Left | Thru | Right |       |              | West                 | East | South | North |
| 7:00 AM             | 0                       | 0    | 0    | 0     | 0                       | 15   | 0    | 45    | 0                       | 0    | 41   | 14    | 0                       | 62   | 30   | 0     | 207   | 1,505        | 1                    | 0    | 0     | 0     |
| 7:15 AM             | 0                       | 0    | 0    | 0     | 0                       | 25   | 0    | 81    | 0                       | 0    | 69   | 24    | 0                       | 76   | 55   | 0     | 330   | 2,056        | 0                    | 0    | 0     | 0     |
| 7:30 AM             | 0                       | 0    | 0    | 0     | 0                       | 19   | 0    | 62    | 0                       | 0    | 70   | 16    | 0                       | 66   | 94   | 0     | 327   | 2,296        | 2                    | 0    | 0     | 0     |
| 7:45 AM             | 0                       | 0    | 0    | 1     | 0                       | 62   | 0    | 75    | 0                       | 0    | 124  | 92    | 0                       | 127  | 159  | 1     | 641   | 2,341        | 4                    | 0    | 3     | 0     |
| 8:00 AM             | 0                       | 0    | 0    | 0     | 0                       | 84   | 0    | 157   | 0                       | 0    | 178  | 74    | 0                       | 103  | 162  | 0     | 758   | 2,056        | 6                    | 0    | 1     | 0     |
| 8:15 AM             | 0                       | 0    | 0    | 0     | 0                       | 47   | 0    | 119   | 0                       | 0    | 137  | 32    | 0                       | 81   | 154  | 0     | 570   |              | 4                    | 0    | 2     | 0     |
| 8:30 AM             | 0                       | 0    | 0    | 0     | 0                       | 10   | 0    | 64    | 0                       | 0    | 136  | 20    | 0                       | 68   | 74   | 0     | 372   |              | 0                    | 0    | 0     | 0     |
| 8:45 AM             | 0                       | 0    | 0    | 0     | 0                       | 16   | 0    | 52    | 0                       | 0    | 91   | 12    | 0                       | 87   | 97   | 1     | 356   |              | 6                    | 0    | 0     | 0     |
| Count Total         | 0                       | 0    | 0    | 1     | 0                       | 278  | 0    | 655   | 0                       | 0    | 846  | 284   | 0                       | 670  | 825  | 2     | 3,561 |              | 23                   | 0    | 6     | 0     |
| Peak Hour           | 0                       | 0    | 0    | 1     | 0                       | 203  | 0    | 415   | 0                       | 0    | 575  | 218   | 0                       | 379  | 549  | 1     | 2,341 |              | 14                   | 0    | 6     | 0     |



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Location: 6 SARATOGA AVE & FRUITVALE AVE PM

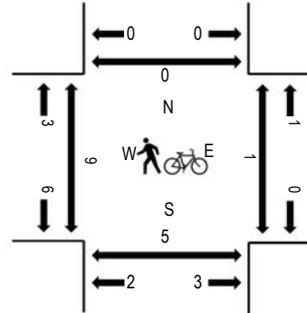
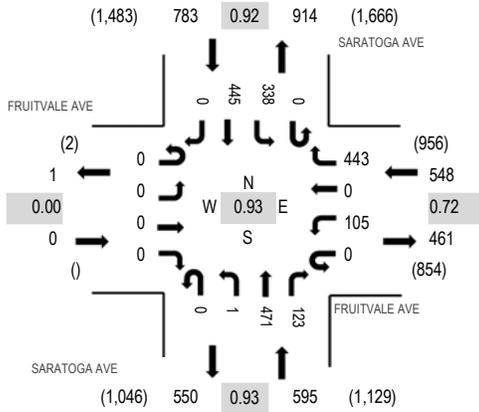
Date: Tuesday, October 19, 2021

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

**Peak Hour - All Vehicles**

**Peak Hour - Pedestrians/Bicycles on Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts**

| Interval<br>Start Time | FRUITVALE AVE<br>Eastbound |      |      |       | FRUITVALE AVE<br>Westbound |      |      |       | SARATOGA AVE<br>Northbound |      |      |       | SARATOGA AVE<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|----------------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                          | 0    | 0    | 0     | 0                          | 18   | 0    | 88    | 0                          | 0    | 109  | 37    | 0                          | 66   | 89   | 0     | 407   | 1,790           | 1                    | 2    | 1     | 0     |
| 4:15 PM                | 0                          | 0    | 0    | 0     | 0                          | 31   | 0    | 90    | 0                          | 0    | 121  | 24    | 0                          | 81   | 109  | 0     | 456   | 1,899           | 1                    | 1    | 0     | 0     |
| 4:30 PM                | 0                          | 0    | 0    | 0     | 0                          | 22   | 0    | 94    | 0                          | 0    | 126  | 38    | 0                          | 89   | 92   | 0     | 461   | 1,926           | 2                    | 1    | 0     | 0     |
| 4:45 PM                | 0                          | 0    | 0    | 0     | 0                          | 22   | 0    | 85    | 0                          | 0    | 115  | 39    | 0                          | 90   | 115  | 0     | 466   | 1,864           | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                          | 0    | 0    | 0     | 0                          | 36   | 0    | 153   | 0                          | 0    | 117  | 25    | 0                          | 83   | 102  | 0     | 516   | 1,778           | 4                    | 0    | 1     | 0     |
| 5:15 PM                | 0                          | 0    | 0    | 0     | 0                          | 25   | 0    | 111   | 0                          | 1    | 113  | 21    | 0                          | 76   | 136  | 0     | 483   |                 | 3                    | 0    | 4     | 0     |
| 5:30 PM                | 0                          | 0    | 0    | 0     | 0                          | 13   | 0    | 86    | 0                          | 0    | 97   | 22    | 0                          | 54   | 127  | 0     | 399   |                 | 1                    | 1    | 0     | 0     |
| 5:45 PM                | 0                          | 0    | 0    | 0     | 0                          | 16   | 0    | 66    | 0                          | 0    | 95   | 29    | 0                          | 80   | 93   | 1     | 380   |                 | 2                    | 3    | 0     | 0     |
| Count Total            | 0                          | 0    | 0    | 0     | 0                          | 183  | 0    | 773   | 0                          | 1    | 893  | 235   | 0                          | 619  | 863  | 1     | 3,568 |                 | 14                   | 8    | 6     | 0     |
| Peak Hour              | 0                          | 0    | 0    | 0     | 0                          | 105  | 0    | 443   | 0                          | 1    | 471  | 123   | 0                          | 338  | 445  | 0     | 1,926 |                 | 9                    | 1    | 5     | 0     |

# AM Peak-Hour Volume Count Worksheet- Saratoga(19DC04)

## AUTO CENSUS

Traffic Monitoring and Analysis

1220 Tasman Dr #316

Sunnyvale, CA 94089

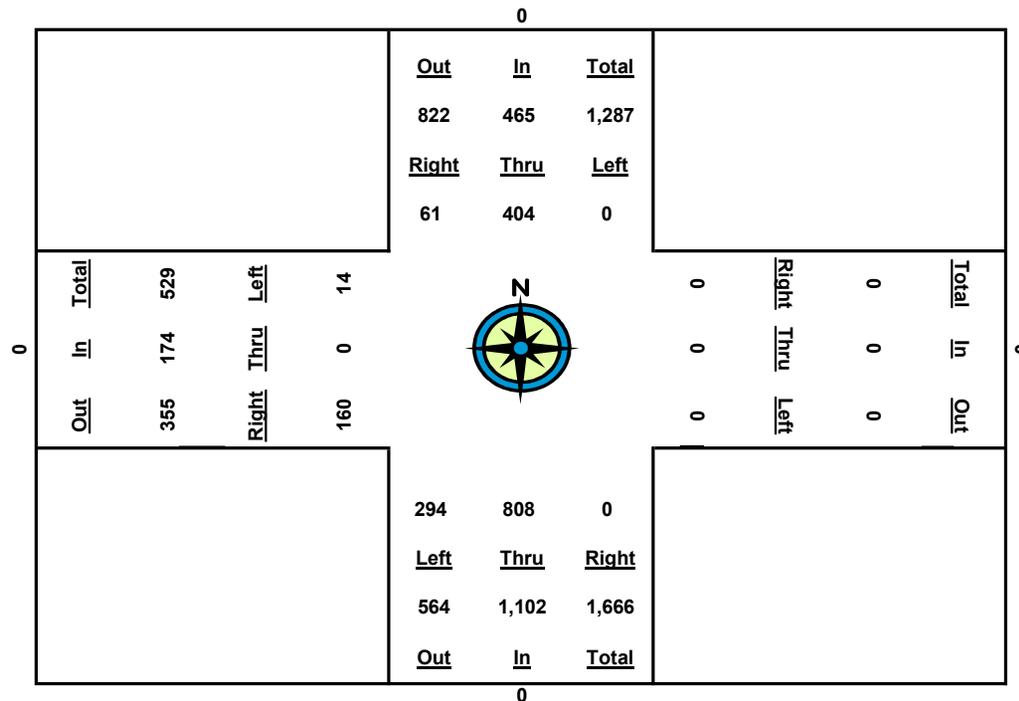
Phone 408-533-3398

Date: Tuesday, April 30th  
 Counter: Patti, Matt  
 Intersection Name: Quito(N/S) & Cox(W)  
 Weather: Fair

| Start Time | North Approach |      |      |       | East Approach |      |      |       | South Approach |       |      |       | West Approach |      |      |       |
|------------|----------------|------|------|-------|---------------|------|------|-------|----------------|-------|------|-------|---------------|------|------|-------|
|            | Right          | Thru | Left | Total | Right         | Thru | Left | Total | Right          | Thru  | Left | Total | Right         | Thru | Left | Total |
| 7:00       | 0              | 0    | 0    | 0     | 0             | 0    | 0    | 0     | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     |
| 7:15       | 14             | 38   | 0    | 52    | 0             | 0    | 0    | 0     | 0              | 172   | 58   | 230   | 18            | 0    | 2    | 20    |
| 7:30       | 21             | 86   | 0    | 107   | 0             | 0    | 0    | 0     | 0              | 401   | 155  | 556   | 26            | 0    | 2    | 28    |
| 7:45       | 31             | 144  | 0    | 175   | 0             | 0    | 0    | 0     | 0              | 632   | 229  | 861   | 45            | 0    | 3    | 48    |
| 8:00       | 41             | 256  | 0    | 297   | 0             | 0    | 0    | 0     | 0              | 834   | 297  | 1,131 | 81            | 0    | 7    | 88    |
| 8:15       | 58             | 377  | 0    | 435   | 0             | 0    | 0    | 0     | 0              | 1,027 | 372  | 1,399 | 133           | 0    | 10   | 143   |
| 8:30       | 76             | 469  | 0    | 545   | 0             | 0    | 0    | 0     | 0              | 1,221 | 470  | 1,691 | 178           | 0    | 13   | 191   |
| 8:45       | 92             | 548  | 0    | 640   | 0             | 0    | 0    | 0     | 0              | 1,440 | 523  | 1,963 | 205           | 0    | 17   | 222   |
| 9:00       | 102            | 626  | 0    | 728   | 0             | 0    | 0    | 0     | 0              | 1,642 | 582  | 2,224 | 225           | 0    | 22   | 247   |

| Peak Hour            | Right     | Thru       | Left     | Total      | Right    | Thru     | Left     | Total    | Right    | Thru       | Left       | Total        | Right      | Thru     | Left      | Total      | PK Hour      |
|----------------------|-----------|------------|----------|------------|----------|----------|----------|----------|----------|------------|------------|--------------|------------|----------|-----------|------------|--------------|
| 7:00 - 8:00          | 41        | 256        | 0        | 297        | 0        | 0        | 0        | 0        | 0        | 834        | 297        | 1,131        | 81         | 0        | 7         | 88         | 1,516        |
| 7:15 - 8:15          | 44        | 339        | 0        | 383        | 0        | 0        | 0        | 0        | 0        | 855        | 314        | 1,169        | 115        | 0        | 8         | 123        | 1,675        |
| 7:30 - 8:30          | 55        | 383        | 0        | 438        | 0        | 0        | 0        | 0        | 0        | 820        | 315        | 1,135        | 152        | 0        | 11        | 163        | 1,736        |
| 7:45 - 8:45          | 61        | 404        | 0        | 465        | 0        | 0        | 0        | 0        | 0        | 808        | 294        | 1,102        | 160        | 0        | 14        | 174        | 1,741        |
| 8:00 - 9:00          | 61        | 370        | 0        | 431        | 0        | 0        | 0        | 0        | 0        | 808        | 285        | 1,093        | 144        | 0        | 15        | 159        | 1,683        |
| <b>Peak Volumes:</b> | <b>61</b> | <b>404</b> | <b>0</b> | <b>465</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>808</b> | <b>294</b> | <b>1,102</b> | <b>160</b> | <b>0</b> | <b>14</b> | <b>174</b> | <b>1,741</b> |

| Cut and Paste | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|               | 294 | 808 | 0   | 0   | 404 | 61  | 14  | 0   | 160 | 0   | 0   | 0   |



# PM Peak-Hour Volume Count Worksheet- Saratoga(19DC04)

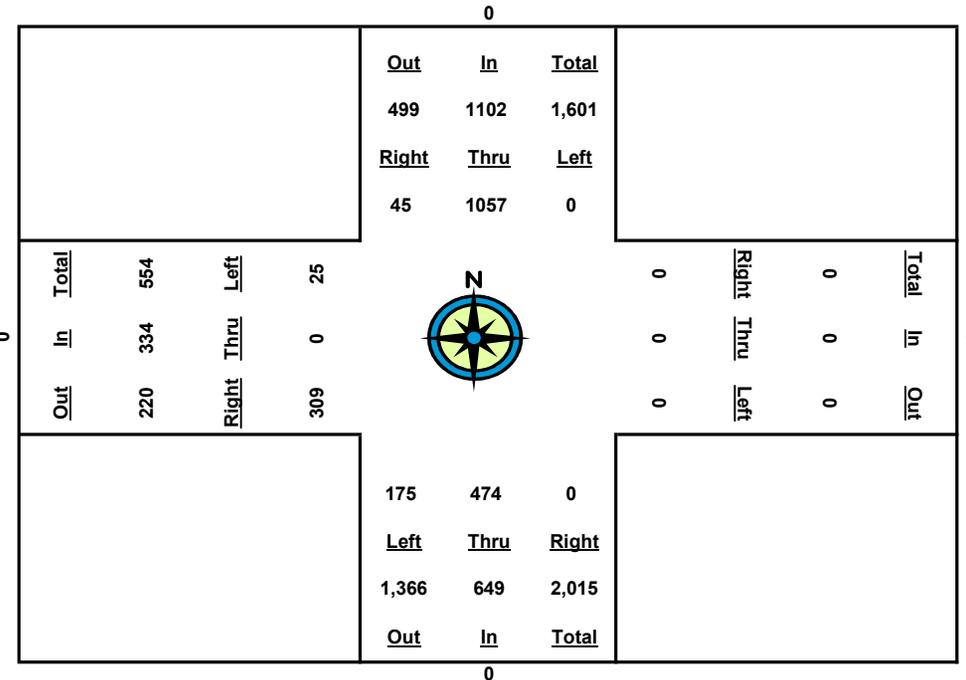
**AUTO CENSUS**  
 Traffic Monitoring and Analysis  
 1220 Tasman Dr. #316  
 Sunnyvale, CA 94089  
 Phone 408-533-3398

Date: Tuesday, April 30th  
 Counter: Patti, Matt  
 Intersection Name: Quito(N/S) & Cox(W)  
 Weather: Fair

| Start Time | North Approach |       |      |       | East Approach |      |      |       | South Approach |      |      |       | West Approach |      |      |       |
|------------|----------------|-------|------|-------|---------------|------|------|-------|----------------|------|------|-------|---------------|------|------|-------|
|            | Right          | Thru  | Left | Total | Right         | Thru | Left | Total | Right          | Thru | Left | Total | Right         | Thru | Left | Total |
| 4:00       | 0              | 0     | 0    | 0     | 0             | 0    | 0    | 0     | 0              | 0    | 0    | 0     | 0             | 0    | 0    | 0     |
| 4:15       | 10             | 196   | 0    | 206   | 0             | 0    | 0    | 0     | 0              | 99   | 29   | 128   | 57            | 0    | 9    | 66    |
| 4:30       | 20             | 401   | 0    | 421   | 0             | 0    | 0    | 0     | 0              | 200  | 45   | 245   | 127           | 0    | 19   | 146   |
| 4:45       | 26             | 632   | 0    | 658   | 0             | 0    | 0    | 0     | 0              | 320  | 81   | 401   | 177           | 0    | 26   | 203   |
| 5:00       | 38             | 869   | 0    | 907   | 0             | 0    | 0    | 0     | 0              | 427  | 115  | 542   | 232           | 0    | 29   | 261   |
| 5:15       | 50             | 1,128 | 0    | 1,178 | 0             | 0    | 0    | 0     | 0              | 556  | 164  | 720   | 304           | 0    | 37   | 341   |
| 5:30       | 61             | 1,359 | 0    | 1,420 | 0             | 0    | 0    | 0     | 0              | 671  | 208  | 879   | 368           | 0    | 43   | 411   |
| 5:45       | 72             | 1,649 | 0    | 1,721 | 0             | 0    | 0    | 0     | 0              | 793  | 255  | 1,048 | 463           | 0    | 47   | 510   |
| 6:00       | 83             | 1,926 | 0    | 2,009 | 0             | 0    | 0    | 0     | 0              | 901  | 290  | 1,191 | 541           | 0    | 54   | 595   |

| Peak Hour            | Right     | Thru         | Left     | Total        | Right    | Thru     | Left     | Total    | Right    | Thru       | Left       | Total      | Right      | Thru     | Left      | Total      | PK Hour      |
|----------------------|-----------|--------------|----------|--------------|----------|----------|----------|----------|----------|------------|------------|------------|------------|----------|-----------|------------|--------------|
| 4:00 - 5:00          | 38        | 869          | 0        | 907          | 0        | 0        | 0        | 0        | 0        | 427        | 115        | 542        | 232        | 0        | 29        | 261        | 1,710        |
| 4:15 - 5:15          | 40        | 932          | 0        | 972          | 0        | 0        | 0        | 0        | 0        | 457        | 135        | 592        | 247        | 0        | 28        | 275        | 1,839        |
| 4:30 - 5:30          | 41        | 958          | 0        | 999          | 0        | 0        | 0        | 0        | 0        | 471        | 163        | 634        | 241        | 0        | 24        | 265        | 1,898        |
| 4:45 - 5:45          | 46        | 1,017        | 0        | 1,063        | 0        | 0        | 0        | 0        | 0        | 473        | 174        | 647        | 286        | 0        | 21        | 307        | 2,017        |
| 5:00 - 6:00          | 45        | 1,057        | 0        | 1,102        | 0        | 0        | 0        | 0        | 0        | 474        | 175        | 649        | 309        | 0        | 25        | 334        | 2,085        |
| <b>Peak Volumes:</b> | <b>45</b> | <b>1,057</b> | <b>0</b> | <b>1,102</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>474</b> | <b>175</b> | <b>649</b> | <b>309</b> | <b>0</b> | <b>25</b> | <b>334</b> | <b>2,085</b> |

| Cut and Paste | NBL | NBT | NBR | SBL | SBT   | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
|---------------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|
|               | 175 | 474 | 0   | 0   | 1,057 | 45  | 25  | 0   | 309 | 0   | 0   | 0   |

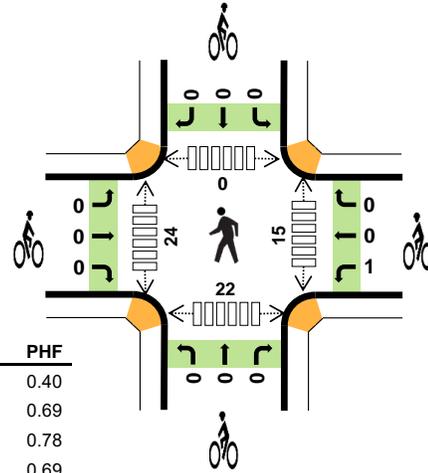
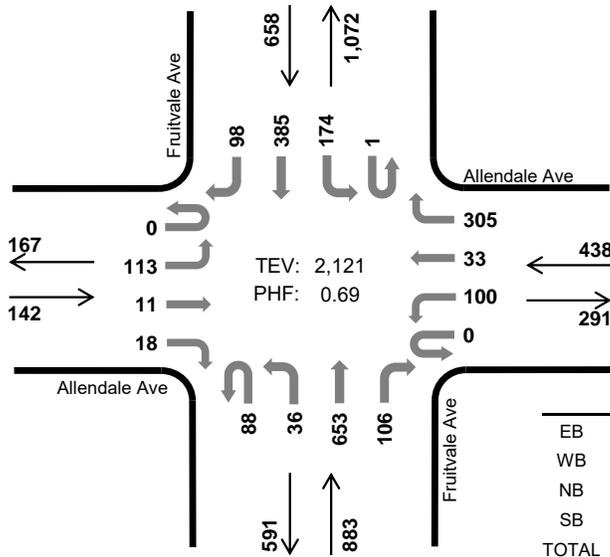


# Fruitvale Ave Allendale Ave



Peak Hour

Date: 02-07-2019  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:30 AM to 8:30 AM



|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 0.7%  | 0.40 |
| WB    | 1.1%  | 0.69 |
| NB    | 2.3%  | 0.78 |
| SB    | 2.1%  | 0.69 |
| TOTAL | 1.9%  | 0.69 |

### Two-Hour Count Summaries

| Interval Start | Allendale Ave Eastbound |     |     |    | Allendale Ave Westbound |     |     |     | Fruitvale Ave Northbound |    |       |     | Fruitvale Ave Southbound |     |     |     | 15-min Total | Rolling One Hour |   |
|----------------|-------------------------|-----|-----|----|-------------------------|-----|-----|-----|--------------------------|----|-------|-----|--------------------------|-----|-----|-----|--------------|------------------|---|
|                | UT                      | LT  | TH  | RT | UT                      | LT  | TH  | RT  | UT                       | LT | TH    | RT  | UT                       | LT  | TH  | RT  |              |                  |   |
| 7:00 AM        | 0                       | 7   | 1   | 3  | 0                       | 7   | 1   | 18  | 3                        | 7  | 70    | 6   | 0                        | 9   | 35  | 18  | 185          | 0                |   |
| 7:15 AM        | 0                       | 32  | 5   | 5  | 0                       | 9   | 10  | 48  | 2                        | 7  | 100   | 12  | 0                        | 29  | 51  | 31  | 341          | 0                |   |
| 7:30 AM        | 0                       | 5   | 2   | 4  | 0                       | 14  | 4   | 62  | 3                        | 6  | 91    | 22  | 0                        | 38  | 56  | 8   | 315          | 0                |   |
| 7:45 AM        | 0                       | 26  | 2   | 2  | 0                       | 18  | 5   | 91  | 28                       | 10 | 183   | 37  | 1                        | 47  | 129 | 39  | 618          | 1,459            |   |
| 8:00 AM        | 0                       | 77  | 4   | 8  | 0                       | 54  | 21  | 84  | 55                       | 18 | 189   | 20  | 0                        | 37  | 155 | 47  | 769          | 2,043            |   |
| 8:15 AM        | 0                       | 5   | 3   | 4  | 0                       | 14  | 3   | 68  | 2                        | 2  | 190   | 27  | 0                        | 52  | 45  | 4   | 419          | 2,121            |   |
| 8:30 AM        | 0                       | 3   | 2   | 3  | 0                       | 11  | 3   | 60  | 0                        | 3  | 101   | 12  | 0                        | 46  | 53  | 13  | 310          | 2,116            |   |
| 8:45 AM        | 0                       | 6   | 0   | 2  | 0                       | 18  | 3   | 42  | 0                        | 4  | 111   | 30  | 0                        | 58  | 101 | 12  | 387          | 1,885            |   |
| Count Total    | 0                       | 161 | 19  | 31 | 0                       | 145 | 50  | 473 | 93                       | 57 | 1,035 | 166 | 1                        | 316 | 625 | 172 | 3,344        | 0                |   |
| Peak Hour      | All                     | 0   | 113 | 11 | 18                      | 0   | 100 | 33  | 305                      | 88 | 36    | 653 | 106                      | 1   | 174 | 385 | 98           | 2,121            | 0 |
|                | HV                      | 0   | 0   | 0  | 1                       | 0   | 3   | 0   | 2                        | 0  | 1     | 13  | 6                        | 0   | 5   | 8   | 1            | 40               | 0 |
|                | HV%                     | -   | 0%  | 0% | 6%                      | -   | 3%  | 0%  | 1%                       | 0% | 3%    | 2%  | 6%                       | 0%  | 3%  | 2%  | 1%           | 2%               | 0 |

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 0                    | 0  | 5  | 1  | 6     | 0        | 0  | 0  | 0  | 0     | 1                          | 0    | 0     | 5     | 6     |
| 7:15 AM        | 0                    | 0  | 0  | 3  | 3     | 0        | 0  | 1  | 0  | 1     | 0                          | 1    | 0     | 1     | 2     |
| 7:30 AM        | 1                    | 1  | 6  | 5  | 13    | 0        | 1  | 0  | 0  | 1     | 0                          | 1    | 0     | 3     | 4     |
| 7:45 AM        | 0                    | 0  | 7  | 3  | 10    | 0        | 0  | 0  | 0  | 0     | 6                          | 10   | 0     | 3     | 19    |
| 8:00 AM        | 0                    | 4  | 2  | 2  | 8     | 0        | 0  | 0  | 0  | 0     | 8                          | 12   | 0     | 15    | 35    |
| 8:15 AM        | 0                    | 0  | 5  | 4  | 9     | 0        | 0  | 0  | 0  | 0     | 1                          | 1    | 0     | 1     | 3     |
| 8:30 AM        | 0                    | 0  | 2  | 1  | 3     | 0        | 0  | 0  | 1  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 8:45 AM        | 1                    | 0  | 5  | 3  | 9     | 0        | 0  | 0  | 0  | 0     | 0                          | 1    | 0     | 3     | 4     |
| Count Total    | 2                    | 5  | 32 | 22 | 61    | 0        | 1  | 1  | 1  | 3     | 16                         | 26   | 0     | 31    | 73    |
| Peak Hour      | 1                    | 5  | 20 | 14 | 40    | 0        | 1  | 0  | 0  | 1     | 15                         | 24   | 0     | 22    | 61    |

| <b>Two-Hour Count Summaries - Heavy Vehicles</b> |               |    |    |    |               |    |    |    |               |    |    |    |               |    |    |    |              |                  |
|--------------------------------------------------|---------------|----|----|----|---------------|----|----|----|---------------|----|----|----|---------------|----|----|----|--------------|------------------|
| Interval Start                                   | Allendale Ave |    |    |    | Allendale Ave |    |    |    | Fruitvale Ave |    |    |    | Fruitvale Ave |    |    |    | 15-min Total | Rolling One Hour |
|                                                  | Eastbound     |    |    |    | Westbound     |    |    |    | Northbound    |    |    |    | Southbound    |    |    |    |              |                  |
|                                                  | UT            | LT | TH | RT |              |                  |
| 7:00 AM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 3  | 2  | 0             | 0  | 1  | 0  | 6            | 0                |
| 7:15 AM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 2  | 1  | 0  | 3            | 0                |
| 7:30 AM                                          | 0             | 0  | 0  | 1  | 0             | 1  | 0  | 0  | 0             | 1  | 3  | 2  | 0             | 1  | 4  | 0  | 13           | 0                |
| 7:45 AM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 6  | 1  | 0             | 1  | 2  | 0  | 10           | 32               |
| 8:00 AM                                          | 0             | 0  | 0  | 0  | 0             | 2  | 0  | 2  | 0             | 0  | 0  | 2  | 0             | 1  | 0  | 1  | 8            | 34               |
| 8:15 AM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 4  | 1  | 0             | 2  | 2  | 0  | 9            | 40               |
| 8:30 AM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 1  | 1  | 0             | 1  | 0  | 0  | 3            | 30               |
| 8:45 AM                                          | 0             | 0  | 0  | 1  | 0             | 0  | 0  | 0  | 0             | 0  | 4  | 1  | 0             | 1  | 2  | 0  | 9            | 29               |
| Count Total                                      | 0             | 0  | 0  | 2  | 0             | 3  | 0  | 2  | 0             | 1  | 21 | 10 | 0             | 9  | 12 | 1  | 61           | 0                |
| Peak Hour                                        | 0             | 0  | 0  | 1  | 0             | 3  | 0  | 2  | 0             | 1  | 13 | 6  | 0             | 5  | 8  | 1  | 40           | 0                |

| <b>Two-Hour Count Summaries - Bikes</b> |               |    |    |               |    |    |               |    |    |               |    |    |              |                  |   |   |   |
|-----------------------------------------|---------------|----|----|---------------|----|----|---------------|----|----|---------------|----|----|--------------|------------------|---|---|---|
| Interval Start                          | Allendale Ave |    |    | Allendale Ave |    |    | Fruitvale Ave |    |    | Fruitvale Ave |    |    | 15-min Total | Rolling One Hour |   |   |   |
|                                         | Eastbound     |    |    | Westbound     |    |    | Northbound    |    |    | Southbound    |    |    |              |                  |   |   |   |
|                                         | LT            | TH | RT |              |                  |   |   |   |
| 7:00 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 0 |
| 7:15 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 1             | 0  | 0  | 0            | 0                | 0 | 1 | 0 |
| 7:30 AM                                 | 0             | 0  | 0  | 1             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 1 | 0 |
| 7:45 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 2 |
| 8:00 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 2 |
| 8:15 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 1 |
| 8:30 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 1            | 0                | 0 | 1 | 1 |
| 8:45 AM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 1 |
| Count Total                             | 0             | 0  | 0  | 1             | 0  | 0  | 0             | 0  | 0  | 1             | 0  | 0  | 1            | 0                | 0 | 3 | 0 |
| Peak Hour                               | 0             | 0  | 0  | 1             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 1 | 0 |

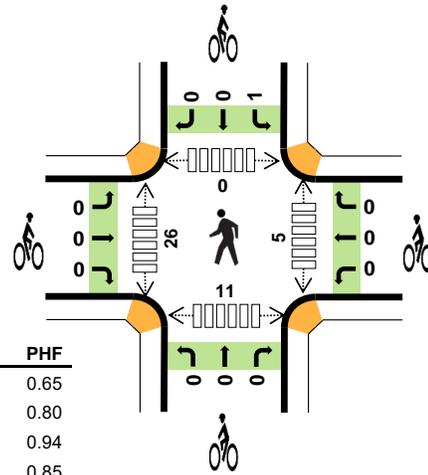
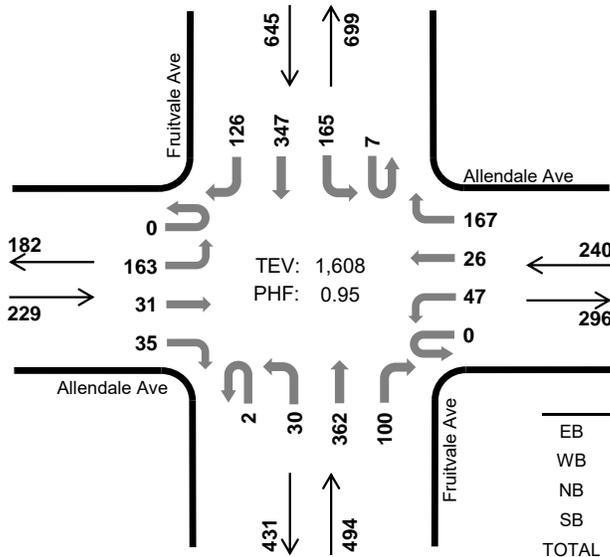
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

### Fruitvale Ave Allendale Ave



Peak Hour

Date: 02-07-2019  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:00 PM to 5:00 PM



|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 0.4%  | 0.65 |
| WB    | 0.4%  | 0.80 |
| NB    | 2.2%  | 0.94 |
| SB    | 1.2%  | 0.85 |
| TOTAL | 1.3%  | 0.95 |

#### Two-Hour Count Summaries

| Interval Start | Allendale Ave Eastbound |     |     |    | Allendale Ave Westbound |    |    |     | Fruitvale Ave Northbound |    |     |     | Fruitvale Ave Southbound |     |     |     | 15-min Total | Rolling One Hour |   |
|----------------|-------------------------|-----|-----|----|-------------------------|----|----|-----|--------------------------|----|-----|-----|--------------------------|-----|-----|-----|--------------|------------------|---|
|                | UT                      | LT  | TH  | RT | UT                      | LT | TH | RT  | UT                       | LT | TH  | RT  | UT                       | LT  | TH  | RT  |              |                  |   |
| 4:00 PM        | 0                       | 26  | 8   | 7  | 0                       | 16 | 8  | 51  | 0                        | 9  | 101 | 22  | 0                        | 37  | 91  | 25  | 401          | 0                |   |
| 4:15 PM        | 0                       | 26  | 3   | 12 | 0                       | 13 | 7  | 44  | 1                        | 5  | 81  | 24  | 0                        | 30  | 87  | 31  | 364          | 0                |   |
| 4:30 PM        | 0                       | 40  | 11  | 8  | 0                       | 8  | 6  | 30  | 0                        | 11 | 96  | 23  | 4                        | 58  | 88  | 40  | 423          | 0                |   |
| 4:45 PM        | 0                       | 71  | 9   | 8  | 0                       | 10 | 5  | 42  | 1                        | 5  | 84  | 31  | 3                        | 40  | 81  | 30  | 420          | 1,608            |   |
| 5:00 PM        | 0                       | 11  | 2   | 8  | 0                       | 15 | 7  | 49  | 3                        | 2  | 80  | 23  | 2                        | 50  | 74  | 13  | 339          | 1,546            |   |
| 5:15 PM        | 0                       | 18  | 5   | 8  | 0                       | 7  | 1  | 33  | 0                        | 0  | 66  | 32  | 0                        | 51  | 96  | 13  | 330          | 1,512            |   |
| 5:30 PM        | 0                       | 21  | 5   | 6  | 0                       | 12 | 6  | 46  | 4                        | 2  | 107 | 21  | 0                        | 83  | 104 | 22  | 439          | 1,528            |   |
| 5:45 PM        | 0                       | 29  | 8   | 10 | 0                       | 13 | 3  | 34  | 0                        | 7  | 74  | 18  | 0                        | 75  | 127 | 19  | 417          | 1,525            |   |
| Count Total    | 0                       | 242 | 51  | 67 | 0                       | 94 | 43 | 329 | 9                        | 41 | 689 | 194 | 9                        | 424 | 748 | 193 | 3,133        | 0                |   |
| Peak Hour      | All                     | 0   | 163 | 31 | 35                      | 0  | 47 | 26  | 167                      | 2  | 30  | 362 | 100                      | 7   | 165 | 347 | 126          | 1,608            | 0 |
|                | HV                      | 0   | 0   | 0  | 1                       | 0  | 1  | 0   | 0                        | 0  | 1   | 6   | 4                        | 0   | 5   | 3   | 0            | 21               | 0 |
|                | HV%                     | -   | 0%  | 0% | 3%                      | -  | 2% | 0%  | 0%                       | 0% | 3%  | 2%  | 4%                       | 0%  | 3%  | 1%  | 0%           | 1%               | 0 |

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 4:00 PM        | 0                    | 0  | 4  | 3  | 7     | 0        | 0  | 0  | 0  | 0     | 1                          | 10   | 0     | 4     | 15    |
| 4:15 PM        | 1                    | 1  | 1  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 1                          | 2    | 0     | 2     | 5     |
| 4:30 PM        | 0                    | 0  | 2  | 1  | 3     | 0        | 0  | 0  | 1  | 1     | 1                          | 9    | 0     | 1     | 11    |
| 4:45 PM        | 0                    | 0  | 4  | 4  | 8     | 0        | 0  | 0  | 0  | 0     | 2                          | 5    | 0     | 4     | 11    |
| 5:00 PM        | 0                    | 0  | 3  | 2  | 5     | 0        | 0  | 0  | 1  | 1     | 2                          | 2    | 0     | 2     | 6     |
| 5:15 PM        | 0                    | 0  | 3  | 1  | 4     | 0        | 1  | 2  | 0  | 3     | 0                          | 1    | 0     | 2     | 3     |
| 5:30 PM        | 0                    | 0  | 1  | 0  | 1     | 0        | 0  | 0  | 1  | 1     | 1                          | 0    | 0     | 1     | 2     |
| 5:45 PM        | 0                    | 0  | 3  | 2  | 5     | 0        | 0  | 0  | 0  | 0     | 1                          | 0    | 0     | 3     | 4     |
| Count Total    | 1                    | 1  | 21 | 13 | 36    | 0        | 1  | 2  | 3  | 6     | 9                          | 29   | 0     | 19    | 57    |
| Peak Hour      | 1                    | 1  | 11 | 8  | 21    | 0        | 0  | 0  | 1  | 1     | 5                          | 26   | 0     | 11    | 42    |

| <b>Two-Hour Count Summaries - Heavy Vehicles</b> |               |    |    |    |               |    |    |    |               |    |    |    |               |    |    |    |              |                  |
|--------------------------------------------------|---------------|----|----|----|---------------|----|----|----|---------------|----|----|----|---------------|----|----|----|--------------|------------------|
| Interval Start                                   | Allendale Ave |    |    |    | Allendale Ave |    |    |    | Fruitvale Ave |    |    |    | Fruitvale Ave |    |    |    | 15-min Total | Rolling One Hour |
|                                                  | Eastbound     |    |    |    | Westbound     |    |    |    | Northbound    |    |    |    | Southbound    |    |    |    |              |                  |
|                                                  | UT            | LT | TH | RT |              |                  |
| 4:00 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 1  | 2  | 1  | 0             | 3  | 0  | 0  | 7            | 0                |
| 4:15 PM                                          | 0             | 0  | 0  | 1  | 0             | 1  | 0  | 0  | 0             | 0  | 0  | 1  | 0             | 0  | 0  | 0  | 3            | 0                |
| 4:30 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 1  | 1  | 0             | 1  | 0  | 0  | 3            | 0                |
| 4:45 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 3  | 1  | 0             | 1  | 3  | 0  | 8            | 21               |
| 5:00 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 2  | 1  | 0             | 1  | 1  | 0  | 5            | 19               |
| 5:15 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 2  | 1  | 0             | 0  | 1  | 0  | 4            | 20               |
| 5:30 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 1  | 0             | 0  | 0  | 0  | 1            | 18               |
| 5:45 PM                                          | 0             | 0  | 0  | 0  | 0             | 0  | 0  | 0  | 0             | 0  | 2  | 1  | 0             | 1  | 1  | 0  | 5            | 15               |
| Count Total                                      | 0             | 0  | 0  | 1  | 0             | 1  | 0  | 0  | 0             | 1  | 12 | 8  | 0             | 7  | 6  | 0  | 36           | 0                |
| Peak Hour                                        | 0             | 0  | 0  | 1  | 0             | 1  | 0  | 0  | 0             | 1  | 6  | 4  | 0             | 5  | 3  | 0  | 21           | 0                |

| <b>Two-Hour Count Summaries - Bikes</b> |               |    |    |               |    |    |               |    |    |               |    |    |              |                  |   |   |   |   |
|-----------------------------------------|---------------|----|----|---------------|----|----|---------------|----|----|---------------|----|----|--------------|------------------|---|---|---|---|
| Interval Start                          | Allendale Ave |    |    | Allendale Ave |    |    | Fruitvale Ave |    |    | Fruitvale Ave |    |    | 15-min Total | Rolling One Hour |   |   |   |   |
|                                         | Eastbound     |    |    | Westbound     |    |    | Northbound    |    |    | Southbound    |    |    |              |                  |   |   |   |   |
|                                         | LT            | TH | RT |              |                  |   |   |   |   |
| 4:00 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 0 | 0 |
| 4:15 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 0 | 0 |
| 4:30 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 1            | 0                | 0 | 1 | 0 | 0 |
| 4:45 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 0 | 1 |
| 5:00 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 1            | 0                | 0 | 1 | 2 | 2 |
| 5:15 PM                                 | 0             | 0  | 0  | 0             | 1  | 0  | 0             | 0  | 2  | 0             | 0  | 0  | 0            | 0                | 0 | 3 | 5 | 5 |
| 5:30 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 1                | 0 | 1 | 5 | 5 |
| 5:45 PM                                 | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0            | 0                | 0 | 0 | 5 | 5 |
| Count Total                             | 0             | 0  | 0  | 0             | 1  | 0  | 0             | 0  | 2  | 0             | 0  | 0  | 2            | 1                | 0 | 6 | 0 | 0 |
| Peak Hour                               | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 0             | 0  | 0  | 1            | 0                | 0 | 1 | 0 | 0 |

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



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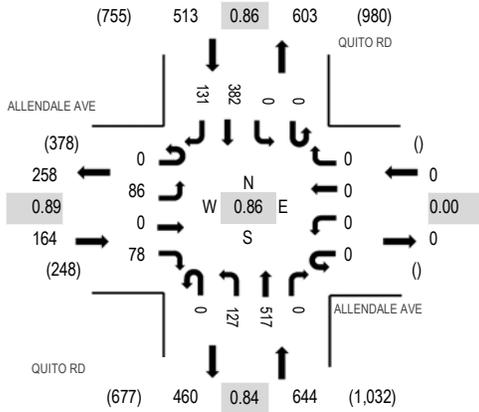
Location: 7 QUITO RD & ALLENDALE AVE AM

Date: Tuesday, October 19, 2021

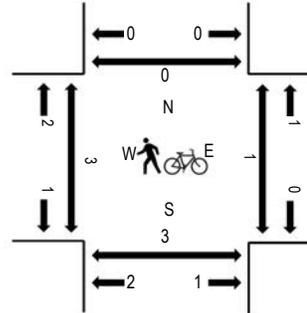
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

| Interval<br>Start Time | ALLENDALE AVE<br>Eastbound |      |      |       | ALLENDALE AVE<br>Westbound |      |      |       | QUITO RD<br>Northbound |      |      | QUITO RD<br>Southbound |        |      |      | Total | Rolling<br>Hour | Pedestrian Crossings |      |      |       |       |
|------------------------|----------------------------|------|------|-------|----------------------------|------|------|-------|------------------------|------|------|------------------------|--------|------|------|-------|-----------------|----------------------|------|------|-------|-------|
|                        | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                 | Left | Thru | Right                  | U-Turn | Left | Thru |       |                 | Right                | West | East | South | North |
| 7:00 AM                | 0                          | 5    | 0    | 6     | 0                          | 0    | 0    | 0     | 0                      | 11   | 57   | 0                      | 0      | 0    | 24   | 12    | 115             | 887                  | 0    | 0    | 0     | 0     |
| 7:15 AM                | 0                          | 11   | 0    | 5     | 0                          | 0    | 0    | 0     | 0                      | 11   | 106  | 0                      | 0      | 0    | 44   | 17    | 194             | 1,129                | 0    | 1    | 0     | 0     |
| 7:30 AM                | 0                          | 22   | 0    | 12    | 0                          | 0    | 0    | 0     | 0                      | 22   | 96   | 0                      | 0      | 0    | 48   | 26    | 226             | 1,321                | 1    | 0    | 2     | 0     |
| 7:45 AM                | 0                          | 17   | 0    | 25    | 0                          | 0    | 0    | 0     | 0                      | 43   | 119  | 0                      | 0      | 0    | 118  | 30    | 352             | 1,313                | 0    | 1    | 0     | 0     |
| 8:00 AM                | 0                          | 23   | 0    | 23    | 0                          | 0    | 0    | 0     | 0                      | 39   | 133  | 0                      | 0      | 0    | 101  | 38    | 357             | 1,148                | 0    | 0    | 0     | 0     |
| 8:15 AM                | 0                          | 24   | 0    | 18    | 0                          | 0    | 0    | 0     | 0                      | 23   | 169  | 0                      | 0      | 0    | 115  | 37    | 386             |                      | 2    | 0    | 1     | 0     |
| 8:30 AM                | 0                          | 15   | 0    | 12    | 0                          | 0    | 0    | 0     | 0                      | 18   | 92   | 0                      | 0      | 0    | 65   | 16    | 218             |                      | 0    | 0    | 0     | 0     |
| 8:45 AM                | 0                          | 16   | 0    | 14    | 0                          | 0    | 0    | 0     | 0                      | 18   | 75   | 0                      | 0      | 0    | 47   | 17    | 187             |                      | 2    | 0    | 0     | 0     |
| Count Total            | 0                          | 133  | 0    | 115   | 0                          | 0    | 0    | 0     | 0                      | 185  | 847  | 0                      | 0      | 0    | 562  | 193   | 2,035           |                      | 5    | 2    | 3     | 0     |
| Peak Hour              | 0                          | 86   | 0    | 78    | 0                          | 0    | 0    | 0     | 0                      | 127  | 517  | 0                      | 0      | 0    | 382  | 131   | 1,321           |                      | 3    | 1    | 3     | 0     |



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Location: 7 QUITO RD & ALLENDALE AVE PM

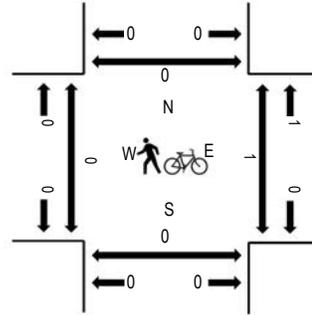
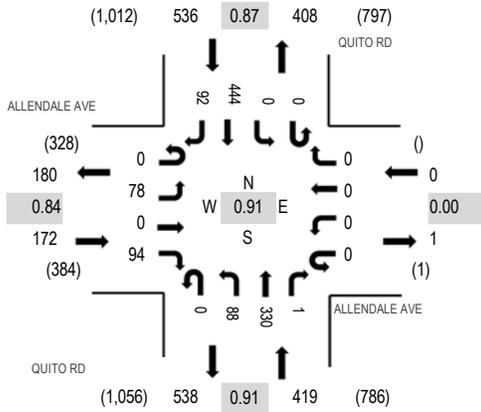
Date: Tuesday, October 19, 2021

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

| Interval<br>Start Time | ALLENDALE AVE<br>Eastbound |      |      |       | ALLENDALE AVE<br>Westbound |      |      |       | QUITO RD<br>Northbound |      |      | QUITO RD<br>Southbound |        |      |      | Total | Rolling<br>Hour | Pedestrian Crossings |       |      |       |       |   |
|------------------------|----------------------------|------|------|-------|----------------------------|------|------|-------|------------------------|------|------|------------------------|--------|------|------|-------|-----------------|----------------------|-------|------|-------|-------|---|
|                        | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                 | Left | Thru | Right                  | U-Turn | Left | Thru |       |                 | Right                | West  | East | South | North |   |
| 4:00 PM                | 0                          | 23   | 0    | 29    | 0                          | 0    | 0    | 0     | 0                      | 0    | 22   | 82                     | 1      | 0    | 0    | 130   | 24              | 311                  | 1,127 | 0    | 0     | 0     | 0 |
| 4:15 PM                | 0                          | 14   | 0    | 22    | 0                          | 0    | 0    | 0     | 0                      | 0    | 26   | 75                     | 0      | 0    | 0    | 113   | 29              | 279                  | 1,060 | 0    | 1     | 0     | 0 |
| 4:30 PM                | 0                          | 22   | 0    | 29    | 0                          | 0    | 0    | 0     | 0                      | 0    | 20   | 95                     | 0      | 0    | 0    | 77    | 14              | 257                  | 1,084 | 0    | 0     | 0     | 0 |
| 4:45 PM                | 0                          | 19   | 0    | 14    | 0                          | 0    | 0    | 0     | 0                      | 0    | 20   | 78                     | 0      | 0    | 0    | 124   | 25              | 280                  | 1,095 | 0    | 0     | 0     | 0 |
| 5:00 PM                | 0                          | 35   | 0    | 27    | 0                          | 0    | 0    | 0     | 0                      | 0    | 13   | 58                     | 0      | 0    | 0    | 92    | 19              | 244                  | 1,055 | 1    | 1     | 0     | 0 |
| 5:15 PM                | 0                          | 22   | 0    | 28    | 0                          | 0    | 0    | 0     | 0                      | 0    | 24   | 82                     | 0      | 0    | 0    | 117   | 30              | 303                  |       | 0    | 0     | 0     | 0 |
| 5:30 PM                | 0                          | 28   | 0    | 35    | 0                          | 0    | 0    | 0     | 0                      | 0    | 19   | 77                     | 0      | 0    | 0    | 95    | 14              | 268                  |       | 0    | 1     | 0     | 0 |
| 5:45 PM                | 0                          | 11   | 0    | 26    | 0                          | 0    | 0    | 0     | 0                      | 0    | 18   | 76                     | 0      | 0    | 0    | 98    | 11              | 240                  |       | 1    | 0     | 0     | 0 |
| Count Total            | 0                          | 174  | 0    | 210   | 0                          | 0    | 0    | 0     | 0                      | 0    | 162  | 623                    | 1      | 0    | 0    | 846   | 166             | 2,182                |       | 2    | 3     | 0     | 0 |
| Peak Hour              | 0                          | 78   | 0    | 94    | 0                          | 0    | 0    | 0     | 0                      | 0    | 88   | 330                    | 1      | 0    | 0    | 444   | 92              | 1,127                |       | 0    | 1     | 0     | 0 |

## Appendix B

### **Traffic Volumes**

Saratoga Housing Element Update Volume Spreadsheet - AM Peak Hour

Intersection Number: 5  
 Traffix Node Number: 5635  
 Intersection Name: Lawrence Expressway & Prospect Road  
 Peak Hour: AM  
 Count Date: 10/03/18  
 Scenario: Saratoga Housing Element

Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Existing Conditions   | 301            | 382  | 133  | 398           | 817  | 84   | 108            | 1269 | 287  | 142           | 414  | 492  | 4827  |
| Cumulative Conditions | 344            | 719  | 368  | 422           | 822  | 84   | 106            | 1669 | 527  | 211           | 411  | 538  | 6221  |
| <b>Project Trips</b>  | 0              | 5    | 0    | 0             | 0    | 0    | 0              | 17   | 1    | 0             | 0    | 0    | 23    |
| Existing + Project    | 306            | 393  | 135  | 405           | 831  | 85   | 110            | 1308 | 293  | 144           | 421  | 500  | 4931  |
| Cumulative + Project  | 350            | 734  | 374  | 429           | 836  | 85   | 108            | 1709 | 536  | 215           | 418  | 547  | 6341  |

Intersection Number: 6  
 Traffix Node Number: 5640  
 Intersection Name: Lawrence Expressway & Saratoga Avenue  
 Peak Hour: AM  
 Count Date: 10/03/18  
 Scenario: Saratoga Housing Element

Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Existing Conditions   | 291            | 227  | 32   | 104           | 723  | 194  | 280            | 907  | 60   | 29            | 636  | 500  | 3983  |
| Cumulative Conditions | 428            | 284  | 244  | 406           | 871  | 212  | 287            | 1058 | 60   | 29            | 775  | 662  | 5316  |
| <b>Project Trips</b>  | 4              | 1    | 0    | 0             | 8    | 2    | 6              | 3    | 0    | 0             | 28   | 14   | 66    |
| Existing + Project    | 300            | 232  | 33   | 106           | 743  | 199  | 291            | 925  | 61   | 29            | 675  | 523  | 4117  |
| Cumulative + Project  | 438            | 289  | 248  | 413           | 892  | 216  | 293            | 1076 | 61   | 29            | 812  | 685  | 5452  |

Intersection Number: 7  
 Traffix Node Number: 7  
 Intersection Name: Saratoga Avenue & Cox Avenue  
 Peak Hour: AM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element

Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00  |
| Existing Conditions   | 241            | 818  | 58   | 10            | 140  | 428  | 199            | 626  | 126  | 245           | 92   | 124  | 3107  |
| Cumulative Conditions | 347            | 970  | 58   | 74            | 147  | 427  | 198            | 747  | 137  | 254           | 95   | 124  | 3578  |
| <b>Project Trips</b>  | 3              | 7    | 2    | 5             | 7    | 15   | 6              | 23   | 0    | 0             | 7    | 14   | 89    |
| Existing + Project    | 248            | 839  | 61   | 15            | 149  | 450  | 208            | 660  | 128  | 249           | 101  | 140  | 3248  |
| Cumulative + Project  | 356            | 992  | 59   | 75            | 150  | 434  | 201            | 782  | 139  | 258           | 102  | 140  | 3688  |

Intersection Number: 8  
 Traffix Node Number: 8  
 Intersection Name: Saratoga Avenue & McFarland Avenue  
 Peak Hour: AM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element

Date of Analysis: 03/08/22

| Scenario: | Movements      |    |    |               |    |    |                |    |    |               |    |    | Total |
|-----------|----------------|----|----|---------------|----|----|----------------|----|----|---------------|----|----|-------|
|           | North Approach |    |    | East Approach |    |    | South Approach |    |    | West Approach |    |    |       |
|           | RT             | TH | LT | RT            | TH | LT | RT             | TH | LT | RT            | TH | LT |       |
| INDEX     | 7              | 6  | 5  | 13            | 12 | 11 | 4              | 3  | 2  | 10            | 9  | 8  |       |

Saratoga Housing Element Update Volume Spreadsheet - AM Peak Hour

|                       |          |           |          |          |          |          |          |           |           |           |          |           |            |      |
|-----------------------|----------|-----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|----------|-----------|------------|------|
| PHF                   | 1.00     | 1.00      | 1.00     | 1.00     | 1.00     | 1.00     | 1.00     | 1.00      | 1.00      | 1.00      | 1.00     | 1.00      | 1.00       | 1.00 |
| Volume Adjustment     | 1.00     | 1.00      | 1.00     | 1.00     | 1.00     | 1.00     | 1.00     | 1.00      | 1.00      | 1.00      | 1.00     | 1.00      | 1.00       | 1.00 |
| Existing Conditions   | 0        | 1622      | 3        | 19       | 1        | 83       | 76       | 1463      | 3         | 0         | 0        | 0         | 3270       |      |
| Cumulative Conditions | 0        | 1809      | 3        | 21       | 1        | 91       | 84       | 1631      | 3         | 0         | 0        | 0         | 3643       |      |
| <b>Project Trips</b>  | <b>3</b> | <b>19</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>15</b> | <b>10</b> | <b>46</b> | <b>0</b> | <b>14</b> | <b>107</b> |      |
| Existing + Project    | 3        | 1669      | 3        | 19       | 1        | 84       | 77       | 1503      | 13        | 46        | 0        | 14        | 3432       |      |
| Cumulative + Project  | 3        | 1843      | 3        | 21       | 1        | 93       | 85       | 1666      | 13        | 46        | 0        | 14        | 3788       |      |

Intersection Number: 9  
 Trafix Node Number: 9  
 Intersection Name: Saratoga Avenue & SR 85 NB Ramps  
 Peak Hour: AM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |           |          |               |          |          |                |           |          |               |          |          | Total     |
|-----------------------|----------------|-----------|----------|---------------|----------|----------|----------------|-----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |          | East Approach |          |          | South Approach |           |          | West Approach |          |          |           |
|                       | RT             | TH        | LT       | RT            | TH       | LT       | RT             | TH        | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5        | 13            | 12       | 11       | 4              | 3         | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 508            | 922       | 0        | 241           | 0        | 257      | 0              | 800       | 493      | 0             | 0        | 0        | 3221      |
| Cumulative Conditions | 508            | 1090      | 0        | 262           | 0        | 257      | 0              | 903       | 492      | 0             | 0        | 0        | 3512      |
| <b>Project Trips</b>  | <b>21</b>      | <b>44</b> | <b>0</b> | <b>4</b>      | <b>0</b> | <b>1</b> | <b>0</b>       | <b>21</b> | <b>5</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>96</b> |
| Existing + Project    | 538            | 982       | 0        | 249           | 0        | 262      | 0              | 835       | 506      | 0             | 0        | 0        | 3372      |
| Cumulative + Project  | 532            | 1143      | 0        | 268           | 0        | 262      | 0              | 933       | 504      | 0             | 0        | 0        | 3642      |

Intersection Number: 10  
 Trafix Node Number: 10  
 Intersection Name: Saratoga Avenue & SR 85 SB Ramps  
 Peak Hour: AM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |           |           |               |          |          |                |           |          |               |          |          | Total     |
|-----------------------|----------------|-----------|-----------|---------------|----------|----------|----------------|-----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |           | East Approach |          |          | South Approach |           |          | West Approach |          |          |           |
|                       | RT             | TH        | LT        | RT            | TH       | LT       | RT             | TH        | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5         | 13            | 12       | 11       | 4              | 3         | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00      | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00      | 1.00      | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 0              | 751       | 437       | 0             | 0        | 0        | 623            | 1043      | 0        | 220           | 0        | 211      | 3285      |
| Cumulative Conditions | 0              | 882       | 461       | 0             | 0        | 0        | 622            | 1090      | 0        | 219           | 0        | 215      | 3489      |
| <b>Project Trips</b>  | <b>0</b>       | <b>32</b> | <b>13</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>4</b>       | <b>20</b> | <b>0</b> | <b>2</b>      | <b>0</b> | <b>5</b> | <b>76</b> |
| Existing + Project    | 0              | 796       | 457       | 0             | 0        | 0        | 638            | 1081      | 0        | 226           | 0        | 220      | 3418      |
| Cumulative + Project  | 0              | 922       | 479       | 0             | 0        | 0        | 636            | 1125      | 0        | 224           | 0        | 222      | 3608      |

Intersection Number: 11  
 Trafix Node Number: 11  
 Intersection Name: Fruitvale Avenue & Saratoga Avenue  
 Peak Hour: AM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |          |          |               |          |           |                |          |          |               |          |          | Total     |
|-----------------------|----------------|----------|----------|---------------|----------|-----------|----------------|----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |          |          | East Approach |          |           | South Approach |          |          | West Approach |          |          |           |
|                       | RT             | TH       | LT       | RT            | TH       | LT        | RT             | TH       | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6        | 5        | 13            | 12       | 11        | 4              | 3        | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00      | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00      | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 0              | 0        | 0        | 0             | 761      | 525       | 575            | 0        | 281      | 302           | 797      | 0        | 3241      |
| Cumulative Conditions | 0              | 0        | 0        | 0             | 908      | 522       | 569            | 0        | 341      | 333           | 846      | 0        | 3519      |
| <b>Project Trips</b>  | <b>0</b>       | <b>0</b> | <b>0</b> | <b>0</b>      | <b>6</b> | <b>15</b> | <b>28</b>      | <b>0</b> | <b>3</b> | <b>1</b>      | <b>2</b> | <b>0</b> | <b>55</b> |
| Existing + Project    | 0              | 0        | 0        | 0             | 780      | 549       | 613            | 0        | 289      | 308           | 813      | 0        | 3352      |
| Cumulative + Project  | 0              | 0        | 0        | 0             | 928      | 542       | 599            | 0        | 349      | 340           | 861      | 0        | 3619      |

Saratoga Housing Element Update Volume Spreadsheet - AM Peak Hour

Intersection Number: 12  
 Traffix Node Number: 12  
 Intersection Name: Quito Road & Cox Avenue  
 Peak Hour: AM  
 Count Date: 04/30/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |          |          |               |          |          |                |          |          |               |          |          | Total     |
|-----------------------|----------------|----------|----------|---------------|----------|----------|----------------|----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |          |          | East Approach |          |          | South Approach |          |          | West Approach |          |          |           |
|                       | RT             | TH       | LT       | RT            | TH       | LT       | RT             | TH       | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6        | 5        | 13            | 12       | 11       | 4              | 3        | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Volume Adjustment     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Existing Conditions   | 62             | 412      | 0        | 0             | 0        | 0        | 0              | 824      | 300      | 163           | 0        | 14       | 1775      |
| Cumulative Conditions | 106            | 413      | 0        | 0             | 0        | 0        | 0              | 835      | 311      | 180           | 0        | 14       | 1859      |
| <b>Project Trips</b>  | <b>2</b>       | <b>2</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>4</b> | <b>4</b> | <b>9</b>      | <b>0</b> | <b>5</b> | <b>26</b> |
| Existing + Project    | 65             | 421      | 0        | 0             | 0        | 0        | 0              | 842      | 309      | 175           | 0        | 19       | 1831      |
| Cumulative + Project  | 108            | 420      | 0        | 0             | 0        | 0        | 0              | 850      | 318      | 188           | 0        | 14       | 1898      |

Intersection Number: 13  
 Traffix Node Number: 13  
 Intersection Name: Fruitvale Avenue & Allendale Avenue  
 Peak Hour: AM  
 Count Date: 02/07/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |           |          |               |          |          |                |           |          |               |          |          | Total     |
|-----------------------|----------------|-----------|----------|---------------|----------|----------|----------------|-----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |          | East Approach |          |          | South Approach |           |          | West Approach |          |          |           |
|                       | RT             | TH        | LT       | RT            | TH       | LT       | RT             | TH        | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5        | 13            | 12       | 11       | 4              | 3         | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Volume Adjustment     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Existing Conditions   | 100            | 393       | 179      | 311           | 34       | 102      | 108            | 666       | 126      | 18            | 11       | 115      | 2163      |
| Cumulative Conditions | 100            | 390       | 207      | 415           | 34       | 102      | 108            | 661       | 126      | 18            | 11       | 115      | 2287      |
| <b>Project Trips</b>  | <b>0</b>       | <b>15</b> | <b>1</b> | <b>4</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>27</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>47</b> |
| Existing + Project    | 102            | 415       | 183      | 320           | 35       | 104      | 110            | 704       | 128      | 18            | 11       | 117      | 2247      |
| Cumulative + Project  | 102            | 409       | 211      | 423           | 35       | 104      | 110            | 693       | 128      | 18            | 11       | 117      | 2361      |

Intersection Number: 14  
 Traffix Node Number: 14  
 Intersection Name: Quito Road & Allendale Avenue  
 Peak Hour: AM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |           |          |               |          |          |                |          |          |               |          |          | Total     |
|-----------------------|----------------|-----------|----------|---------------|----------|----------|----------------|----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |          | East Approach |          |          | South Approach |          |          | West Approach |          |          |           |
|                       | RT             | TH        | LT       | RT            | TH       | LT       | RT             | TH       | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5        | 13            | 12       | 11       | 4              | 3        | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Volume Adjustment     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00      |
| Existing Conditions   | 182            | 530       | 0        | 0             | 0        | 0        | 0              | 717      | 176      | 108           | 0        | 119      | 1832      |
| Cumulative Conditions | 182            | 700       | 0        | 0             | 0        | 0        | 0              | 722      | 174      | 107           | 0        | 119      | 2004      |
| <b>Project Trips</b>  | <b>0</b>       | <b>11</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>8</b> | <b>4</b> | <b>1</b>      | <b>0</b> | <b>0</b> | <b>24</b> |
| Existing + Project    | 185            | 550       | 0        | 0             | 0        | 0        | 0              | 737      | 183      | 111           | 0        | 121      | 1887      |
| Cumulative + Project  | 185            | 717       | 0        | 0             | 0        | 0        | 0              | 737      | 178      | 109           | 0        | 121      | 2047      |

Saratoga Housing Element Update Volume Spreadsheet - PM Peak Hour

Intersection Number: 5  
 Traffix Node Number: 5635  
 Intersection Name: Lawrence Expressway & Prospect Road  
 Peak Hour: PM  
 Count Date: 10/03/18  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 311            | 1055 | 412  | 227           | 458  | 148  | 112            | 404  | 141  | 329           | 632  | 298  | 4527  |
| Cumulative Conditions | 320            | 1431 | 459  | 361           | 535  | 152  | 106            | 701  | 293  | 685           | 711  | 342  | 6096  |
| <b>Project Trips</b>  | 0              | 16   | 0    | 0             | 0    | 0    | 0              | 9    | 0    | 1             | 0    | 0    | 26    |
| Existing + Project    | 316            | 1089 | 419  | 231           | 466  | 151  | 114            | 420  | 143  | 336           | 643  | 303  | 4631  |
| Cumulative + Project  | 325            | 1466 | 467  | 367           | 544  | 155  | 108            | 719  | 298  | 697           | 723  | 348  | 6217  |

Intersection Number: 6  
 Traffix Node Number: 5640  
 Intersection Name: Lawrence Expressway & Saratoga Avenue  
 Peak Hour: PM  
 Count Date: 10/03/18  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 441            | 868  | 110  | 70            | 674  | 298  | 295            | 312  | 88   | 37            | 850  | 314  | 4357  |
| Cumulative Conditions | 622            | 1010 | 500  | 231           | 870  | 313  | 323            | 440  | 91   | 38            | 1006 | 471  | 5915  |
| <b>Project Trips</b>  | 13             | 4    | 0    | 0             | 26   | 6    | 4              | 2    | 0    | 0             | 15   | 7    | 77    |
| Existing + Project    | 461            | 887  | 112  | 71            | 711  | 309  | 304            | 319  | 89   | 38            | 879  | 326  | 4506  |
| Cumulative + Project  | 643            | 1027 | 509  | 235           | 906  | 319  | 328            | 447  | 93   | 39            | 1035 | 485  | 6066  |

Intersection Number: 7  
 Traffix Node Number: 7  
 Intersection Name: Saratoga Avenue & Cox Avenue  
 Peak Hour: PM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 144            | 1073 | 82   | 23            | 148  | 245  | 233            | 933  | 289  | 250           | 212  | 147  | 3779  |
| Cumulative Conditions | 164            | 1254 | 119  | 31            | 150  | 245  | 231            | 1122 | 289  | 257           | 218  | 181  | 4261  |
| <b>Project Trips</b>  | 12             | 22   | 5    | 3             | 7    | 9    | 17             | 13   | 0    | 0             | 8    | 6    | 102   |
| Existing + Project    | 158            | 1113 | 88   | 26            | 158  | 258  | 254            | 962  | 294  | 254           | 224  | 155  | 3944  |
| Cumulative + Project  | 179            | 1295 | 121  | 32            | 157  | 249  | 236            | 1152 | 294  | 261           | 224  | 190  | 4390  |

Intersection Number: 8  
 Traffix Node Number: 8  
 Intersection Name: Saratoga Avenue & McFarland Avenue  
 Peak Hour: PM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario: | Movements      |    |    |               |    |    |                |    |    |               |    |    | Total |
|-----------|----------------|----|----|---------------|----|----|----------------|----|----|---------------|----|----|-------|
|           | North Approach |    |    | East Approach |    |    | South Approach |    |    | West Approach |    |    |       |
|           | RT             | TH | LT | RT            | TH | LT | RT             | TH | LT | RT            | TH | LT |       |

Saratoga Housing Element Update Volume Spreadsheet - PM Peak Hour

|                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| INDEX                 | 7    | 6    | 5    | 13   | 12   | 11   | 4    | 3    | 2    | 10   | 9    | 8    |      |
| PHF                   | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |
| Volume Adjustment     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |      |
| Existing Conditions   | 40   | 1758 | 30   | 25   | 0    | 48   | 11   | 1772 | 26   | 55   | 1    | 3    | 3769 |
| Cumulative Conditions | 45   | 2002 | 34   | 28   | 0    | 54   | 12   | 2014 | 30   | 62   | 1    | 3    | 4285 |
| <b>Project Trips</b>  | 12   | 19   | 0    | 0    | 0    | 0    | 0    | 23   | 37   | 20   | 0    | 6    | 117  |
| Existing + Project    | 53   | 1807 | 31   | 25   | 0    | 49   | 11   | 1825 | 63   | 76   | 1    | 9    | 3950 |
| Cumulative + Project  | 58   | 2044 | 35   | 28   | 0    | 55   | 12   | 2053 | 68   | 83   | 1    | 9    | 4446 |

Intersection Number: 9  
 Traffix Node Number: 9  
 Intersection Name: Saratoga Avenue & SR 85 NB Ramps  
 Peak Hour: PM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 274            | 1130 | 0    | 771           | 4    | 680  | 0              | 576  | 242  | 0             | 0    | 0    | 3677  |
| Cumulative Conditions | 279            | 1320 | 0    | 794           | 4    | 679  | 0              | 709  | 241  | 0             | 0    | 0    | 4026  |
| <b>Project Trips</b>  | 11             | 29   | 0    | 12            | 0    | 3    | 0              | 48   | 3    | 0             | 0    | 0    | 106   |
| Existing + Project    | 290            | 1178 | 0    | 796           | 4    | 695  | 0              | 634  | 249  | 0             | 0    | 0    | 3846  |
| Cumulative + Project  | 291            | 1364 | 0    | 815           | 4    | 694  | 0              | 755  | 247  | 0             | 0    | 0    | 4170  |

Intersection Number: 10  
 Traffix Node Number: 10  
 Intersection Name: Saratoga Avenue & SR 85 SB Ramps  
 Peak Hour: PM  
 Count Date: 05/02/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 0              | 1280 | 514  | 0             | 0    | 0    | 295            | 636  | 0    | 175           | 6    | 155  | 3061  |
| Cumulative Conditions | 0              | 1410 | 539  | 0             | 0    | 0    | 294            | 777  | 0    | 174           | 6    | 156  | 3356  |
| <b>Project Trips</b>  | 0              | 27   | 6    | 0             | 0    | 0    | 3              | 33   | 0    | 5             | 0    | 19   | 93    |
| Existing + Project    | 0              | 1329 | 529  | 0             | 0    | 0    | 303            | 680  | 0    | 183           | 6    | 177  | 3207  |
| Cumulative + Project  | 0              | 1454 | 552  | 0             | 0    | 0    | 301            | 814  | 0    | 181           | 6    | 171  | 3479  |

Intersection Number: 11  
 Traffix Node Number: 11  
 Intersection Name: Fruitvale Avenue & Saratoga Avenue  
 Peak Hour: PM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |      |      |               |      |      |                |      |      |               |      |      | Total |
|-----------------------|----------------|------|------|---------------|------|------|----------------|------|------|---------------|------|------|-------|
|                       | North Approach |      |      | East Approach |      |      | South Approach |      |      | West Approach |      |      |       |
|                       | RT             | TH   | LT   | RT            | TH   | LT   | RT             | TH   | LT   | RT            | TH   | LT   |       |
| INDEX                 | 7              | 6    | 5    | 13            | 12   | 11   | 4              | 3    | 2    | 10            | 9    | 8    |       |
| PHF                   | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Volume Adjustment     | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 | 1.00           | 1.00 | 1.00 | 1.00          | 1.00 | 1.00 |       |
| Existing Conditions   | 0              | 0    | 0    | 0             | 614  | 466  | 611            | 0    | 145  | 170           | 650  | 0    | 2656  |
| Cumulative Conditions | 0              | 0    | 0    | 0             | 693  | 466  | 615            | 0    | 158  | 251           | 805  | 0    | 2988  |
| <b>Project Trips</b>  | 0              | 0    | 0    | 0             | 3    | 31   | 22             | 0    | 2    | 4             | 6    | 0    | 68    |
| Existing + Project    | 0              | 0    | 0    | 0             | 627  | 505  | 643            | 0    | 149  | 177           | 667  | 0    | 2768  |

Saratoga Housing Element Update Volume Spreadsheet - PM Peak Hour

Cumulative + Project 0 0 0 0 707 497 641 0 162 257 823 0 3087

Intersection Number: 12  
 Traffix Node Number: 12  
 Intersection Name: Quito Road & Cox Avenue  
 Peak Hour: PM  
 Count Date: 04/30/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |          |          |               |          |          |                |          |          |               |          |          | Total     |
|-----------------------|----------------|----------|----------|---------------|----------|----------|----------------|----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |          |          | East Approach |          |          | South Approach |          |          | West Approach |          |          |           |
|                       | RT             | TH       | LT       | RT            | TH       | LT       | RT             | TH       | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6        | 5        | 13            | 12       | 11       | 4              | 3        | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00     | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 46             | 1078     | 0        | 0             | 0        | 0        | 0              | 484      | 179      | 315           | 0        | 26       | 2128      |
| Cumulative Conditions | 46             | 1084     | 0        | 0             | 0        | 0        | 0              | 492      | 193      | 327           | 0        | 33       | 2175      |
| <b>Project Trips</b>  | <b>5</b>       | <b>5</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>3</b> | <b>8</b> | <b>8</b>      | <b>0</b> | <b>3</b> | <b>32</b> |
| Existing + Project    | 52             | 1101     | 0        | 0             | 0        | 0        | 0              | 495      | 190      | 328           | 0        | 29       | 2195      |
| Cumulative + Project  | 47             | 1103     | 0        | 0             | 0        | 0        | 0              | 501      | 200      | 336           | 0        | 34       | 2221      |

Intersection Number: 13  
 Traffix Node Number: 13  
 Intersection Name: Fruitvale Avenue & Allendale Avenue  
 Peak Hour: PM  
 Count Date: 02/07/19  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

| Scenario:             | Movements      |           |          |               |          |          |                |           |          |               |          |          | Total     |
|-----------------------|----------------|-----------|----------|---------------|----------|----------|----------------|-----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |          | East Approach |          |          | South Approach |           |          | West Approach |          |          |           |
|                       | RT             | TH        | LT       | RT            | TH       | LT       | RT             | TH        | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5        | 13            | 12       | 11       | 4              | 3         | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 129            | 354       | 175      | 170           | 27       | 48       | 102            | 369       | 33       | 36            | 32       | 166      | 1641      |
| Cumulative Conditions | 129            | 347       | 251      | 307           | 27       | 48       | 102            | 364       | 33       | 36            | 32       | 166      | 1842      |
| <b>Project Trips</b>  | <b>0</b>       | <b>31</b> | <b>4</b> | <b>3</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>22</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>60</b> |
| Existing + Project    | 131            | 391       | 182      | 176           | 27       | 49       | 104            | 397       | 34       | 37            | 33       | 169      | 1730      |
| Cumulative + Project  | 131            | 377       | 256      | 313           | 27       | 49       | 104            | 387       | 34       | 37            | 33       | 169      | 1917      |

Intersection Number: 14  
 Traffix Node Number: 14  
 Intersection Name: Quito Road & Allendale Avenue  
 Peak Hour: PM  
 Count Date: 10/19/21  
 Scenario: Saratoga Housing Element  
 Date of Analysis: 03/08/22

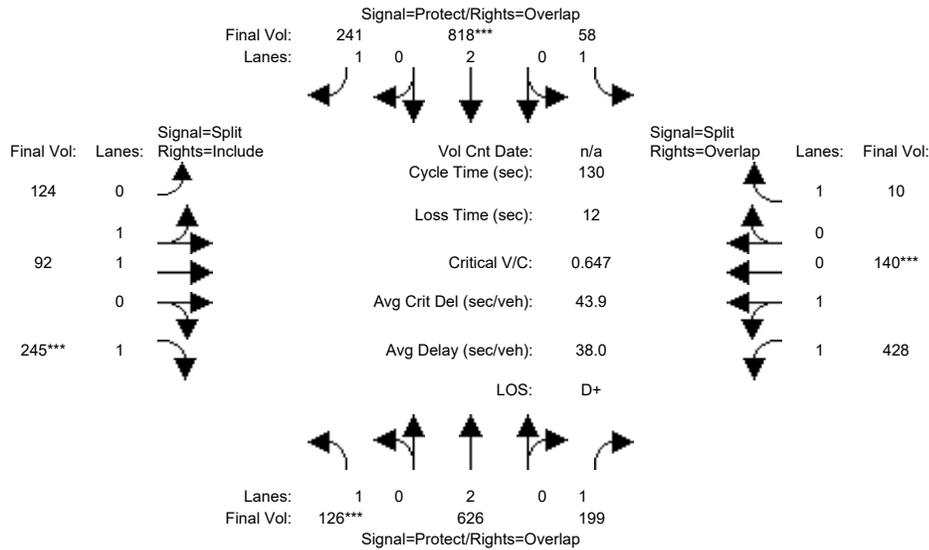
| Scenario:             | Movements      |           |          |               |          |          |                |           |          |               |          |          | Total     |
|-----------------------|----------------|-----------|----------|---------------|----------|----------|----------------|-----------|----------|---------------|----------|----------|-----------|
|                       | North Approach |           |          | East Approach |          |          | South Approach |           |          | West Approach |          |          |           |
|                       | RT             | TH        | LT       | RT            | TH       | LT       | RT             | TH        | LT       | RT            | TH       | LT       |           |
| INDEX                 | 7              | 6         | 5        | 13            | 12       | 11       | 4              | 3         | 2        | 10            | 9        | 8        |           |
| PHF                   | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Volume Adjustment     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     | 1.00           | 1.00      | 1.00     | 1.00          | 1.00     | 1.00     |           |
| Existing Conditions   | 127            | 613       | 0        | 0             | 0        | 0        | 0              | 455       | 121      | 130           | 0        | 108      | 1554      |
| Cumulative Conditions | 129            | 638       | 0        | 0             | 0        | 0        | 0              | 518       | 122      | 159           | 0        | 109      | 1675      |
| <b>Project Trips</b>  | <b>0</b>       | <b>12</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>0</b> | <b>0</b>       | <b>11</b> | <b>3</b> | <b>4</b>      | <b>0</b> | <b>0</b> | <b>30</b> |
| Existing + Project    | 129            | 635       | 0        | 0             | 0        | 0        | 0              | 474       | 126      | 136           | 0        | 110      | 1610      |
| Cumulative + Project  | 131            | 653       | 0        | 0             | 0        | 0        | 0              | 532       | 125      | 163           | 0        | 111      | 1715      |

## Appendix C

### **Level of Service Calculations**

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 126  | 626  | 199  | 58   | 818  | 241  | 124  | 92   | 245  | 428  | 140  | 10   |

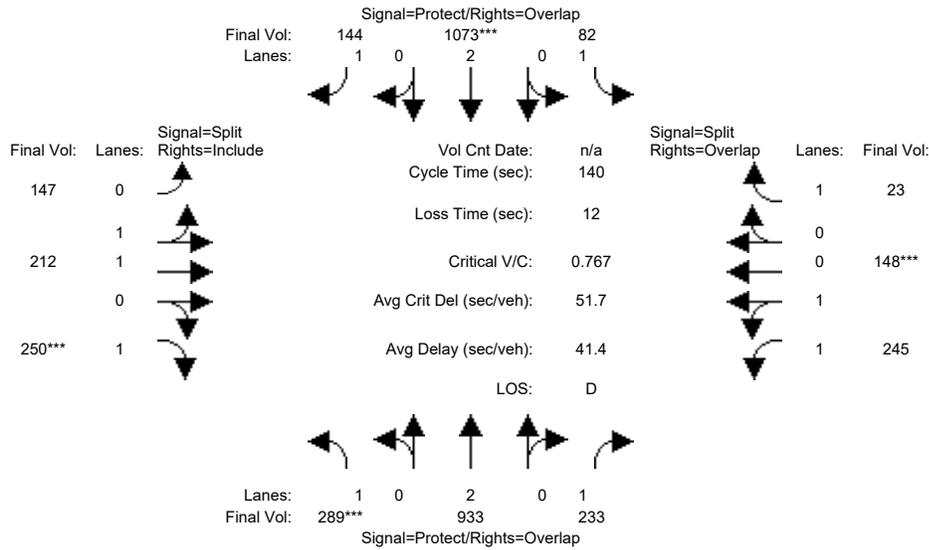
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.93 | 0.95 | 0.92 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.51 | 0.49 | 1.00 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1750 | 1900 | 1750 | 2675 | 875  | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.16 | 0.11 | 0.03 | 0.22 | 0.14 | 0.07 | 0.05 | 0.14 | 0.16 | 0.16 | 0.01 |
| Crit Moves:               | **** |      |      |      | **** |      |      |      | **** | **** |      |      |
| Green Time:               | 14.5 | 43.5 | 75.7 | 14.2 | 43.3 | 71.4 | 28.1 | 28.1 | 28.1 | 32.2 | 32.2 | 46.4 |
| Volume/Cap:               | 0.65 | 0.49 | 0.20 | 0.30 | 0.65 | 0.25 | 0.33 | 0.22 | 0.65 | 0.65 | 0.65 | 0.02 |
| Uniform Del:              | 55.3 | 34.5 | 12.8 | 53.3 | 36.9 | 15.3 | 43.0 | 41.9 | 46.4 | 43.8 | 43.8 | 27.1 |
| IncrementDel:             | 7.4  | 0.3  | 0.1  | 0.9  | 1.2  | 0.1  | 0.3  | 0.1  | 3.9  | 1.7  | 1.7  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 62.7 | 34.8 | 12.9 | 54.2 | 38.1 | 15.5 | 43.2 | 42.1 | 50.3 | 45.5 | 45.5 | 27.1 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 62.7 | 34.8 | 12.9 | 54.2 | 38.1 | 15.5 | 43.2 | 42.1 | 50.3 | 45.5 | 45.5 | 27.1 |
| LOS by Move:              | E    | C-   | B    | D-   | D+   | B    | D    | D    | D    | D    | D    | C    |
| HCM2kAvgQ:                | 5    | 10   | 4    | 2    | 14   | 5    | 5    | 3    | 10   | 12   | 12   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 289  | 933  | 233  | 82   | 1073 | 144  | 147  | 212  | 250  | 245  | 148  | 23   |

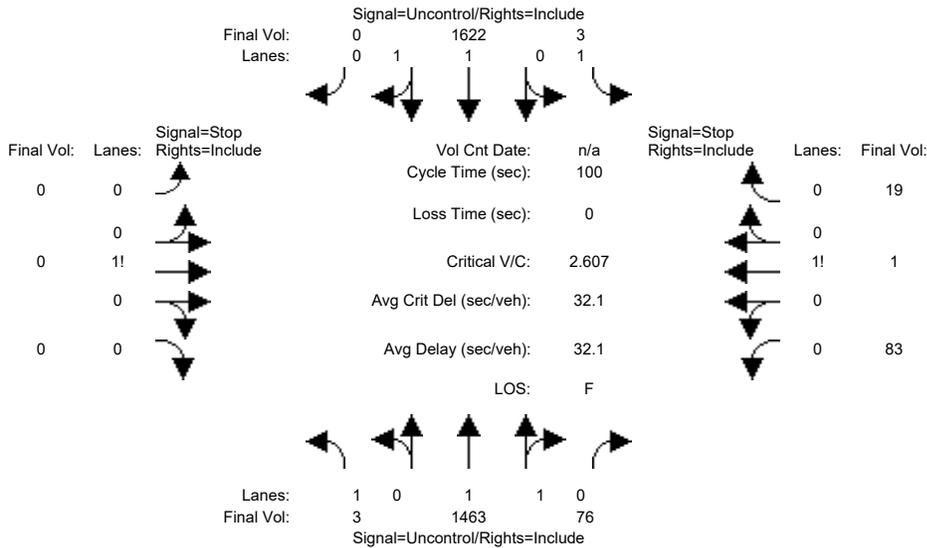
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.95 | 0.99 | 0.92 | 0.93 | 0.95 | 0.92 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 0.84 | 1.16 | 1.00 | 1.26 | 0.74 | 1.00 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1514 | 2184 | 1750 | 2213 | 1337 | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.17 | 0.25 | 0.13 | 0.05 | 0.28 | 0.08 | 0.10 | 0.10 | 0.14 | 0.11 | 0.11 | 0.01 |
| Crit Moves:               | ***  |      |      |      | **** |      |      |      | **** |      | **** |      |
| Green Time:               | 30.2 | 67.9 | 88.1 | 13.8 | 51.6 | 77.6 | 26.1 | 26.1 | 26.1 | 20.2 | 20.2 | 34.0 |
| Volume/Cap:               | 0.77 | 0.51 | 0.21 | 0.47 | 0.77 | 0.15 | 0.52 | 0.52 | 0.77 | 0.77 | 0.77 | 0.05 |
| Uniform Del:              | 51.6 | 24.6 | 11.1 | 59.7 | 38.9 | 15.1 | 51.3 | 51.3 | 54.1 | 57.6 | 57.6 | 40.6 |
| IncrementDel:             | 9.2  | 0.2  | 0.1  | 2.1  | 2.6  | 0.1  | 0.7  | 0.7  | 10.5 | 6.9  | 6.9  | 0.1  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 60.8 | 24.9 | 11.2 | 61.7 | 41.5 | 15.2 | 52.0 | 52.0 | 64.5 | 64.5 | 64.5 | 40.7 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 60.8 | 24.9 | 11.2 | 61.7 | 41.5 | 15.2 | 52.0 | 52.0 | 64.5 | 64.5 | 64.5 | 40.7 |
| LOS by Move:              | E    | C    | B+   | E    | D    | B    | D-   | D-   | E    | E    | E    | D    |
| HCM2kAvgQ:                | 13   | 13   | 4    | 3    | 20   | 3    | 8    | 8    | 13   | 10   | 10   | 1    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing AM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 3    | 1463 | 76   | 3    | 1622 | 0    | 0    | 0    | 0    | 83   | 1    | 19   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 3    | 1463 | 76   | 3    | 1622 | 0    | 0    | 0    | 0    | 83   | 1    | 19   |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 3    | 1463 | 76   | 3    | 1622 | 0    | 0    | 0    | 0    | 83   | 1    | 19   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 3    | 1463 | 76   | 3    | 1622 | 0    | 0    | 0    | 0    | 83   | 1    | 19   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 3    | 1463 | 76   | 3    | 1622 | 0    | 0    | 0    | 0    | 83   | 1    | 19   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 6.8 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|------|
| Cnflct Vol:  | 1622 | xxxx | xxxxxx | 1539 | xxxx | xxxxxx | 2366 | 3173 | 811  | 2324 | 3135 | 770  |
| Potent Cap.: | 407  | xxxx | xxxxxx | 438  | xxxx | xxxxxx | 19   | 11   | 327  | 32   | 11   | 348  |
| Move Cap.:   | 407  | xxxx | xxxxxx | 438  | xxxx | xxxxxx | 17   | 10   | 327  | 32   | 11   | 348  |
| Volume/Cap:  | 0.01 | xxxx | xxxx   | 0.01 | xxxx | xxxx   | 0.00 | 0.00 | 0.00 | 2.61 | 0.09 | 0.05 |

Level Of Service Module:

|              |               |      |        |               |      |        |               |      |        |               |      |        |
|--------------|---------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| 2Way95thQ:   | 0.0           | xxxx | xxxxxx | 0.0           | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx |
| Control Del: | 13.9          | xxxx | xxxxxx | 13.3          | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx |
| LOS by Move: | B             | *    | *      | B             | *    | *      | *             | *    | *      | *             | *    | *      |
| Movement:    | LT - LTR - RT |      |        |
| Shared Cap.: | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | 0    | xxxxxx | xxxx          | 37   | xxxxxx |
| SharedQueue: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 11.5 | xxxxxx |
| Shrd ConDel: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 1019 | xxxxxx |
| Shared LOS:  | *             | *    | *      | *             | *    | *      | *             | *    | *      | *             | F    | *      |
| ApproachDel: | xxxxxxx       |      |        | xxxxxxx       |      |        | xxxxxxx       |      |        | 1019.2        |      |        |
| ApproachLOS: | *             |      |        | *             |      |        | *             |      |        | F             |      |        |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 3 1463 76    | 3 1622 0     | 0 0 0 0    | 83 1 19    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | xxxxxxx    | 1019.2     |

Approach[westbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=29.2]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=103]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=3270]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 3 1463 76    | 3 1622 0     | 0 0 0 0    | 83 1 19    |

Major Street Volume: 3167  
 Minor Approach Volume: 103  
 Minor Approach Volume Threshold: -112 [less than minimum of 100]

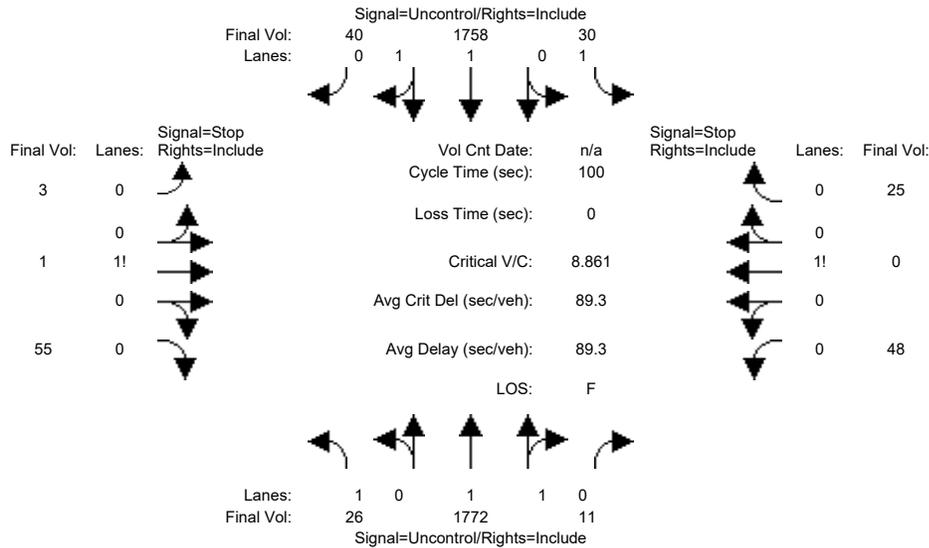
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Unsignalized (Future Volume Alternative)  
 Existing PM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 26   | 1772 | 11   | 30   | 1758 | 40   | 3    | 1    | 55   | 48   | 0    | 25   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 26   | 1772 | 11   | 30   | 1758 | 40   | 3    | 1    | 55   | 48   | 0    | 25   |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 26   | 1772 | 11   | 30   | 1758 | 40   | 3    | 1    | 55   | 48   | 0    | 25   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 26   | 1772 | 11   | 30   | 1758 | 40   | 3    | 1    | 55   | 48   | 0    | 25   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 26   | 1772 | 11   | 30   | 1758 | 40   | 3    | 1    | 55   | 48   | 0    | 25   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|------|
| Cnflct Vol:  | 1798 | xxxx | xxxxxx | 1783 | xxxx | xxxxxx | 2776 | 3673 | 899  | 2769 | 3688 | 892  |
| Potent Cap.: | 348  | xxxx | xxxxxx | 353  | xxxx | xxxxxx | 9    | 5    | 286  | 9    | 5    | 289  |
| Move Cap.:   | 348  | xxxx | xxxxxx | 353  | xxxx | xxxxxx | 7    | 4    | 286  | 5    | 4    | 289  |
| Volume/Cap:  | 0.07 | xxxx | xxxx   | 0.09 | xxxx | xxxx   | 0.41 | 0.24 | 0.19 | 8.86 | 0.00 | 0.09 |

Level Of Service Module:

|              |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:   | 0.2           | xxxx          | xxxxxx        | 0.3           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del: | 16.2          | xxxx          | xxxxxx        | 16.2          | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move: | C             | *             | *             | C             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:    | LT - LTR - RT |
| Shared Cap.: | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 70            | xxxxxx        | xxxx          | 8             | xxxxxx        |
| SharedQueue: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 4.0           | xxxxxx        | xxxxxx        | 10.7          | xxxxxx        |
| Shrd ConDel: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 163           | xxxxxx        | xxxxxx        | 4465          | xxxxxx        |
| Shared LOS:  | *             | *             | *             | *             | *             | *             | *             | F             | *             | *             | F             | *             |
| ApproachDel: | xxxxxxx       |               |               | xxxxxxx       |               |               | 163.5         |               |               | 4464.8        |               |               |
| ApproachLOS: | *             |               |               | *             |               |               | F             |               |               | F             |               |               |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 26 1772 11   | 30 1758 40   | 3 1 55     | 48 0 25    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 163.5      | 4464.8     |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=2.7]  
 FAIL - Vehicle-hours less than 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=59]  
 FAIL - Approach volume less than 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=3769]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=90.5]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=73]  
 FAIL - Approach volume less than 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=3769]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 26 1772 11   | 30 1758 40   | 3 1 55     | 48 0 25    |

Major Street Volume: 3637  
 Minor Approach Volume: 73  
 Minor Approach Volume Threshold: -160 [less than minimum of 100]

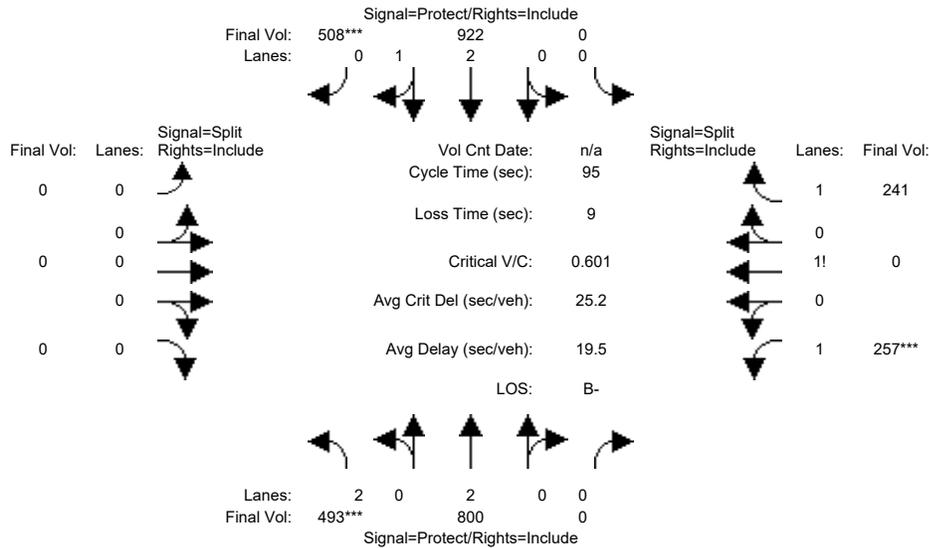
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |
| Added Vol:     | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:    | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:  | 493         | 800  | 0    | 0           | 922  | 508  | 0          | 0    | 0    | 257        | 0    | 241  |

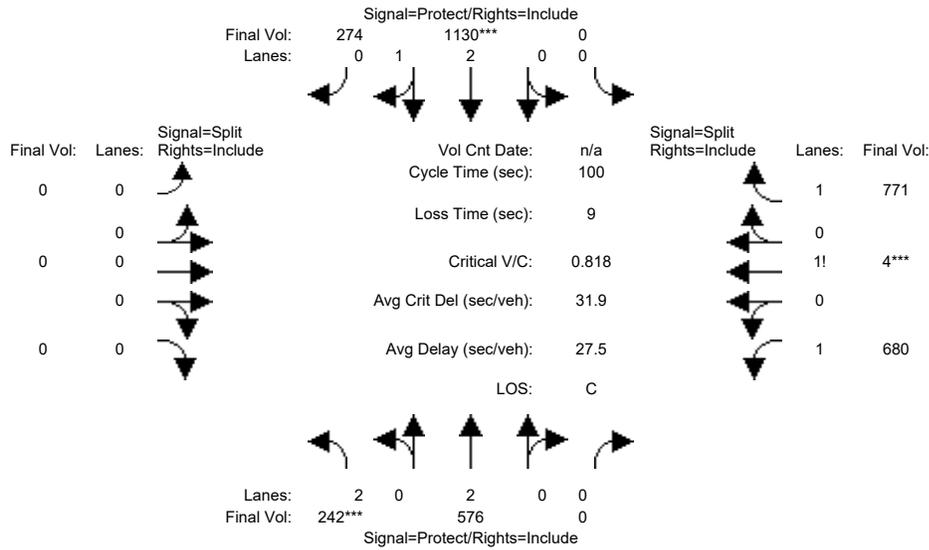
| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:             | 0.83        | 1.00 | 0.92 | 0.92        | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                  | 2.00        | 2.00 | 0.00 | 0.00        | 2.00 | 1.00 | 0.00       | 0.00 | 0.00 | 1.52       | 0.00 | 1.48 |
| Final Sat.:             | 3150        | 3800 | 0    | 0           | 3800 | 1750 | 0          | 0    | 0    | 2653       | 0    | 2597 |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.16        | 0.21 | 0.00 | 0.00        | 0.24 | 0.29 | 0.00       | 0.00 | 0.00 | 0.10       | 0.00 | 0.09 |
| Crit Moves:               | ****        |      |      |             | **** |      |            |      |      | ****       |      |      |
| Green Time:               | 24.8        | 70.7 | 0.0  | 0.0         | 45.9 | 45.9 | 0.0        | 0.0  | 0.0  | 15.3       | 0.0  | 15.3 |
| Volume/Cap:               | 0.60        | 0.28 | 0.00 | 0.00        | 0.50 | 0.60 | 0.00       | 0.00 | 0.00 | 0.60       | 0.00 | 0.58 |
| Uniform Del:              | 30.8        | 3.9  | 0.0  | 0.0         | 16.7 | 17.9 | 0.0        | 0.0  | 0.0  | 37.0       | 0.0  | 36.8 |
| IncrementDel:             | 1.2         | 0.1  | 0.0  | 0.0         | 0.1  | 0.4  | 0.0        | 0.0  | 0.0  | 1.2        | 0.0  | 1.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 | 1.00       | 0.00 | 1.00 |
| Delay/Veh:                | 32.0        | 4.0  | 0.0  | 0.0         | 16.9 | 18.3 | 0.0        | 0.0  | 0.0  | 38.2       | 0.0  | 37.8 |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 32.0        | 4.0  | 0.0  | 0.0         | 16.9 | 18.3 | 0.0        | 0.0  | 0.0  | 38.2       | 0.0  | 37.8 |
| LOS by Move:              | C-          | A    | A    | A           | B    | B-   | A          | A    | A    | D+         | A    | D+   |
| HCM2kAvgQ:                | 7           | 4    | 0    | 0           | 9    | 11   | 0          | 0    | 0    | 6          | 0    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |
| Added Vol:     | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:    | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:  | 242         | 576  | 0    | 0           | 1130 | 274  | 0          | 0    | 0    | 680        | 4    | 771  |

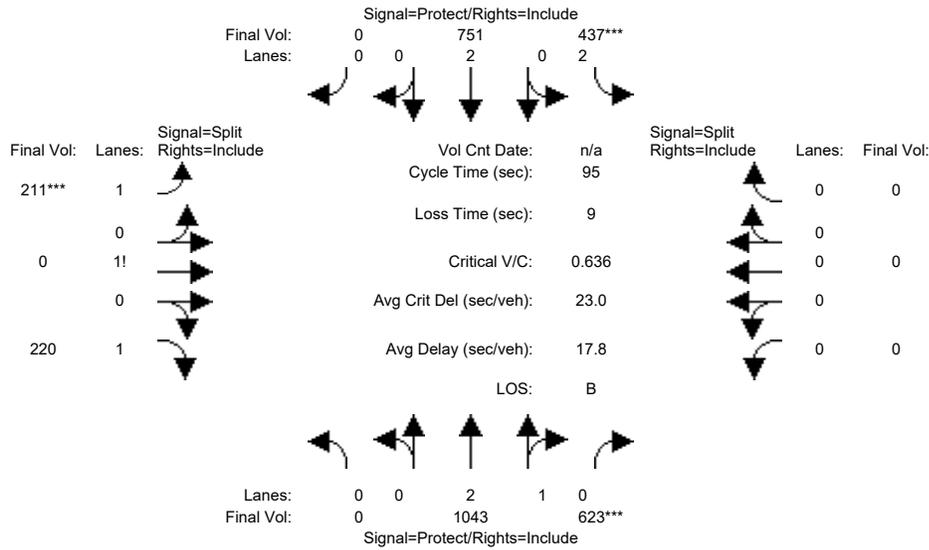
| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:             | 0.83        | 1.00 | 0.92 | 0.92        | 0.99 | 0.95 | 0.92       | 1.00 | 0.92 | 0.92       | 0.92 | 0.92 |
| Lanes:                  | 2.00        | 2.00 | 0.00 | 0.00        | 2.39 | 0.61 | 0.00       | 0.00 | 0.00 | 1.46       | 0.01 | 1.53 |
| Final Sat.:             | 3150        | 3800 | 0    | 0           | 4506 | 1093 | 0          | 0    | 0    | 2566       | 10   | 2675 |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.08        | 0.15 | 0.00 | 0.00        | 0.25 | 0.25 | 0.00       | 0.00 | 0.00 | 0.27       | 0.42 | 0.29 |
| Crit Moves:               | ***         |      |      | ****        |      |      |            |      |      | ****       |      |      |
| Green Time:               | 9.4         | 40.0 | 0.0  | 0.0         | 30.7 | 30.7 | 0.0        | 0.0  | 0.0  | 51.0       | 51.0 | 51.0 |
| Volume/Cap:               | 0.82        | 0.38 | 0.00 | 0.00        | 0.82 | 0.82 | 0.00       | 0.00 | 0.00 | 0.52       | 0.82 | 0.57 |
| Uniform Del:              | 44.5        | 21.2 | 0.0  | 0.0         | 32.1 | 32.1 | 0.0        | 0.0  | 0.0  | 16.4       | 20.6 | 16.9 |
| IncrementDel:             | 16.2        | 0.2  | 0.0  | 0.0         | 3.2  | 3.2  | 0.0        | 0.0  | 0.0  | 0.2        | 3.1  | 0.3  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                | 60.7        | 21.3 | 0.0  | 0.0         | 35.3 | 35.3 | 0.0        | 0.0  | 0.0  | 16.5       | 23.7 | 17.2 |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 60.7        | 21.3 | 0.0  | 0.0         | 35.3 | 35.3 | 0.0        | 0.0  | 0.0  | 16.5       | 23.7 | 17.2 |
| LOS by Move:              | E           | C+   | A    | A           | D+   | D+   | A          | A    | A    | B          | C    | B    |
| HCM2kAvgQ:                | 5           | 6    | 0    | 0           | 13   | 13   | 0          | 0    | 0    | 10         | 22   | 12   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

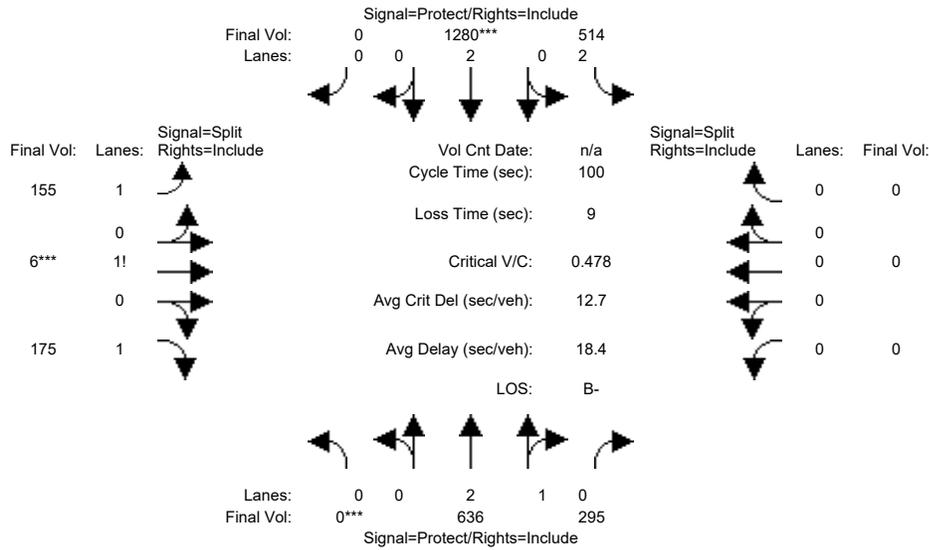


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 1043 | 623  | 437         | 751  | 0    | 211                    | 0    | 220  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.92                   | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.00 | 1.00 | 2.00        | 2.00 | 0.00 | 1.49                   | 0.00 | 1.51 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 3800 | 1750 | 3150        | 3800 | 0    | 2607                   | 0    | 2643 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.27 | 0.36 | 0.14        | 0.20 | 0.00 | 0.08                   | 0.00 | 0.08 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               |                 |      | **** | ****        |      |      | ****                   |      |      |            |      |      |
| Green Time:               | 0.0             | 53.0 | 53.0 | 20.6        | 73.6 | 0.0  | 12.4                   | 0.0  | 12.4 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.49 | 0.64 | 0.64        | 0.26 | 0.00 | 0.62                   | 0.00 | 0.64 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 12.8 | 14.4 | 33.8        | 3.0  | 0.0  | 39.1                   | 0.0  | 39.2 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.1  | 0.5  | 2.0         | 0.0  | 0.0  | 1.7                    | 0.0  | 2.1  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 12.9 | 15.0 | 35.8        | 3.0  | 0.0  | 40.8                   | 0.0  | 41.2 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 12.9 | 15.0 | 35.8        | 3.0  | 0.0  | 40.8                   | 0.0  | 41.2 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | B    | B    | D+          | A    | A    | D                      | A    | D    | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 9    | 14   | 7           | 3    | 0    | 5                      | 0    | 6    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

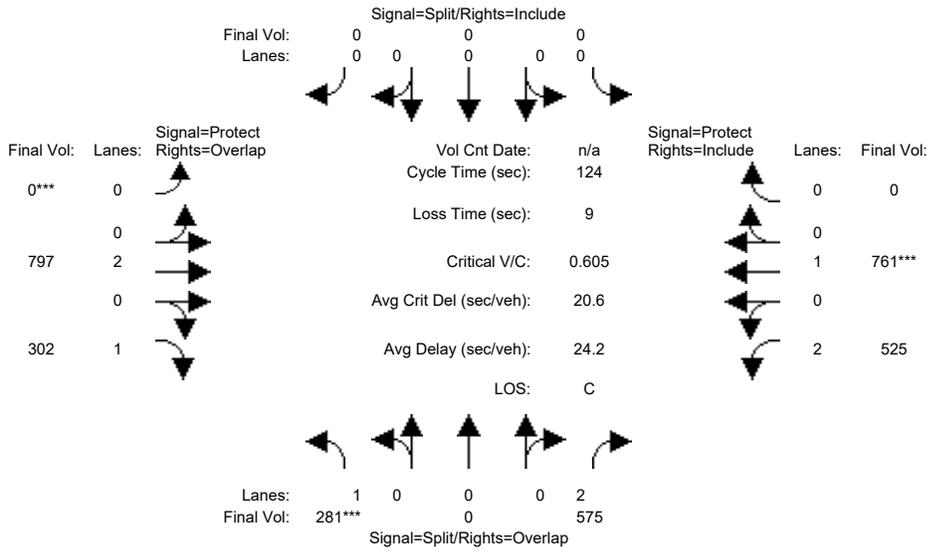


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 636  | 295  | 514         | 1280 | 0    | 155                    | 6    | 175  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.95 | 0.83        | 1.00 | 0.92 | 0.92                   | 0.92 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.01 | 0.99 | 2.00        | 2.00 | 0.00 | 1.45                   | 0.04 | 1.51 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 3823 | 1773 | 3150        | 3800 | 0    | 2543                   | 61   | 2645 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.17 | 0.17 | 0.16        | 0.34 | 0.00 | 0.06                   | 0.10 | 0.07 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ****            |      |      |             | **** |      |                        | **** |      |            |      |      |
| Green Time:               | 0.0             | 35.6 | 35.6 | 34.9        | 70.5 | 0.0  | 20.5                   | 20.5 | 20.5 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.47 | 0.47 | 0.47        | 0.48 | 0.00 | 0.30                   | 0.48 | 0.32 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 24.9 | 24.9 | 25.3        | 6.5  | 0.0  | 33.7                   | 35.1 | 33.9 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.2  | 0.2  | 0.3         | 0.1  | 0.0  | 0.1                    | 0.5  | 0.2  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 25.0 | 25.0 | 25.6        | 6.7  | 0.0  | 33.8                   | 35.6 | 34.1 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 25.0 | 25.0 | 25.6        | 6.7  | 0.0  | 33.8                   | 35.6 | 34.1 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | C    | C    | C           | A    | A    | C-                     | D+   | C-   | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 8    | 8    | 7           | 8    | 0    | 3                      | 5    | 3    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #11: Fruitvale Ave & Saratoga Ave

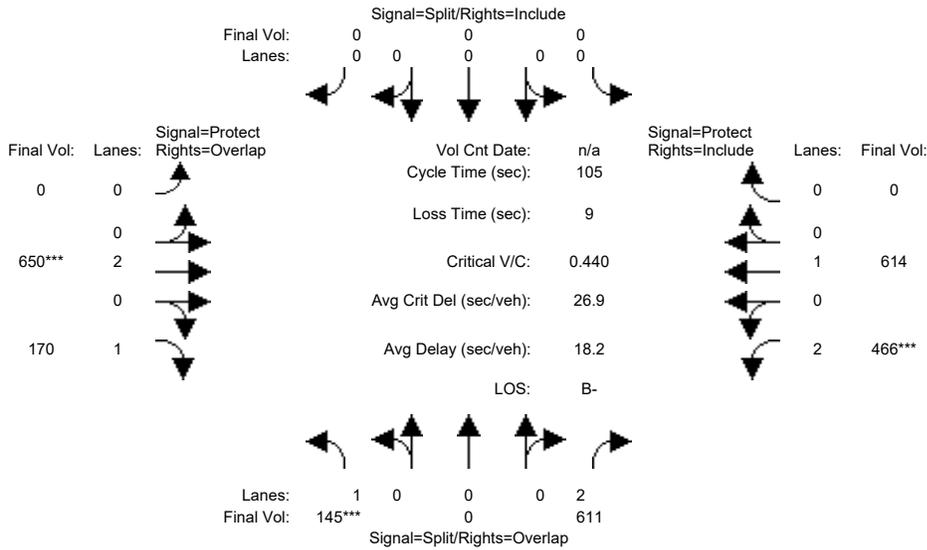


| Street Name:              | Fruitvale Avenue |      |      |             |      |      | Saratoga Avenue |      |      |            |      |      |
|---------------------------|------------------|------|------|-------------|------|------|-----------------|------|------|------------|------|------|
| Approach:                 | North Bound      |      |      | South Bound |      |      | East Bound      |      |      | West Bound |      |      |
| Movement:                 | L                | T    | R    | L           | T    | R    | L               | T    | R    | L          | T    | R    |
| Min. Green:               | 10               | 0    | 10   | 0           | 0    | 0    | 0               | 10   | 10   | 7          | 10   | 0    |
| Y+R:                      | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0             | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Base Vol:                 | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| Growth Adj:               | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| Added Vol:                | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| User Adj:                 | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| Reduct Vol:               | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| PCE Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:              | 281              | 0    | 575  | 0           | 0    | 0    | 0               | 797  | 302  | 525        | 761  | 0    |
| Saturation Flow Module:   |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Sat/Lane:                 | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900            | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92             | 1.00 | 0.83 | 0.92        | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 |
| Lanes:                    | 1.00             | 0.00 | 2.00 | 0.00        | 0.00 | 0.00 | 0.00            | 2.00 | 1.00 | 2.00       | 1.00 | 0.00 |
| Final Sat.:               | 1750             | 0    | 3150 | 0           | 0    | 0    | 0               | 3800 | 1750 | 3150       | 1900 | 0    |
| Capacity Analysis Module: |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Vol/Sat:                  | 0.16             | 0.00 | 0.18 | 0.00        | 0.00 | 0.00 | 0.00            | 0.21 | 0.17 | 0.17       | 0.40 | 0.00 |
| Crit Moves:               | ***              |      |      |             |      |      | ***             |      |      | ***        |      |      |
| Green Time:               | 32.9             | 0.0  | 69.3 | 0.0         | 0.0  | 0.0  | 0.0             | 45.7 | 78.7 | 36.3       | 82.1 | 0.0  |
| Volume/Cap:               | 0.61             | 0.00 | 0.33 | 0.00        | 0.00 | 0.00 | 0.00            | 0.57 | 0.27 | 0.57       | 0.61 | 0.00 |
| Uniform Del:              | 39.9             | 0.0  | 14.8 | 0.0         | 0.0  | 0.0  | 0.0             | 31.2 | 10.0 | 37.2       | 11.8 | 0.0  |
| IncrementDel:             | 2.3              | 0.0  | 0.1  | 0.0         | 0.0  | 0.0  | 0.0             | 0.6  | 0.1  | 0.8        | 0.8  | 0.0  |
| InitQueueDel:             | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00             | 0.00 | 1.00 | 0.00        | 0.00 | 0.00 | 0.00            | 1.00 | 1.00 | 1.00       | 1.00 | 0.00 |
| Delay/Veh:                | 42.1             | 0.0  | 14.9 | 0.0         | 0.0  | 0.0  | 0.0             | 31.8 | 10.2 | 38.0       | 12.7 | 0.0  |
| User DelAdj:              | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 42.1             | 0.0  | 14.9 | 0.0         | 0.0  | 0.0  | 0.0             | 31.8 | 10.2 | 38.0       | 12.7 | 0.0  |
| LOS by Move:              | D                | A    | B    | A           | A    | A    | A               | C    | B+   | D+         | B    | A    |
| HCM2kAvgQ:                | 10               | 0    | 7    | 0           | 0    | 0    | 0               | 12   | 5    | 11         | 16   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #11: Fruitvale Ave & Saratoga Ave

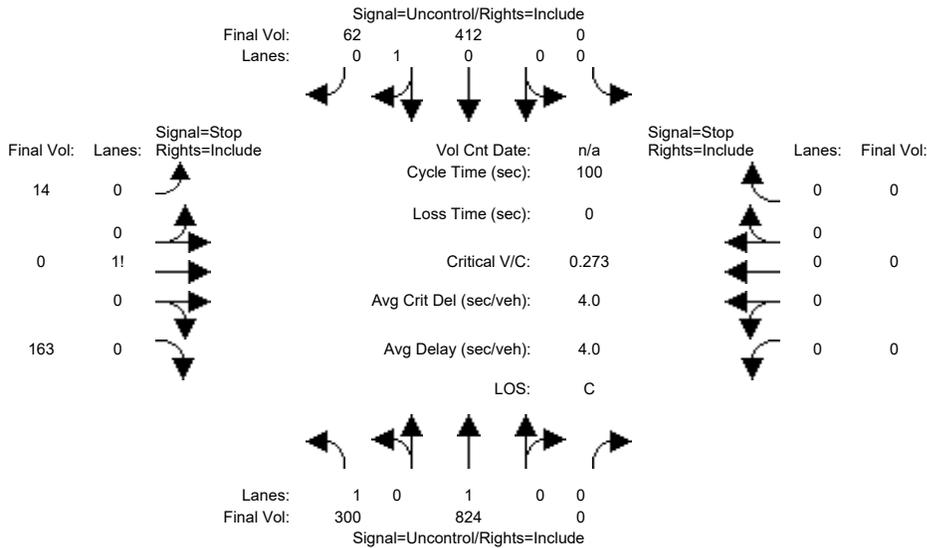


| Street Name:              | Fruitvale Avenue |      |      |             |      |      | Saratoga Avenue |      |      |            |      |      |
|---------------------------|------------------|------|------|-------------|------|------|-----------------|------|------|------------|------|------|
| Approach:                 | North Bound      |      |      | South Bound |      |      | East Bound      |      |      | West Bound |      |      |
| Movement:                 | L                | T    | R    | L           | T    | R    | L               | T    | R    | L          | T    | R    |
| Min. Green:               | 10               | 0    | 10   | 0           | 0    | 0    | 0               | 10   | 10   | 7          | 10   | 0    |
| Y+R:                      | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0             | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Base Vol:                 | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| Growth Adj:               | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| Added Vol:                | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| User Adj:                 | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| Reduct Vol:               | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| PCE Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:              | 145              | 0    | 611  | 0           | 0    | 0    | 0               | 650  | 170  | 466        | 614  | 0    |
| Saturation Flow Module:   |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Sat/Lane:                 | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900            | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92             | 1.00 | 0.83 | 0.92        | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 |
| Lanes:                    | 1.00             | 0.00 | 2.00 | 0.00        | 0.00 | 0.00 | 0.00            | 2.00 | 1.00 | 2.00       | 1.00 | 0.00 |
| Final Sat.:               | 1750             | 0    | 3150 | 0           | 0    | 0    | 0               | 3800 | 1750 | 3150       | 1900 | 0    |
| Capacity Analysis Module: |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Vol/Sat:                  | 0.08             | 0.00 | 0.19 | 0.00        | 0.00 | 0.00 | 0.00            | 0.17 | 0.10 | 0.15       | 0.32 | 0.00 |
| Crit Moves:               | ***              |      |      |             |      |      |                 | ***  |      | ***        |      |      |
| Green Time:               | 19.8             | 0.0  | 55.1 | 0.0         | 0.0  | 0.0  | 0.0             | 40.9 | 60.7 | 35.3       | 76.2 | 0.0  |
| Volume/Cap:               | 0.44             | 0.00 | 0.37 | 0.00        | 0.00 | 0.00 | 0.00            | 0.44 | 0.17 | 0.44       | 0.45 | 0.00 |
| Uniform Del:              | 37.7             | 0.0  | 14.7 | 0.0         | 0.0  | 0.0  | 0.0             | 23.6 | 10.4 | 27.1       | 5.8  | 0.0  |
| IncrementDel:             | 0.9              | 0.0  | 0.1  | 0.0         | 0.0  | 0.0  | 0.0             | 0.2  | 0.1  | 0.3        | 0.2  | 0.0  |
| InitQueueDel:             | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00             | 0.00 | 1.00 | 0.00        | 0.00 | 0.00 | 0.00            | 1.00 | 1.00 | 1.00       | 1.00 | 0.00 |
| Delay/Veh:                | 38.6             | 0.0  | 14.8 | 0.0         | 0.0  | 0.0  | 0.0             | 23.8 | 10.4 | 27.4       | 6.1  | 0.0  |
| User DelAdj:              | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 38.6             | 0.0  | 14.8 | 0.0         | 0.0  | 0.0  | 0.0             | 23.8 | 10.4 | 27.4       | 6.1  | 0.0  |
| LOS by Move:              | D+               | A    | B    | A           | A    | A    | A               | C    | B+   | C          | A    | A    |
| HCM2kAvgQ:                | 4                | 0    | 7    | 0           | 0    | 0    | 0               | 8    | 3    | 7          | 8    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and rows for Volume Module metrics: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume.

Table for Critical Gap Module with 12 columns and 2 rows: Critical Gp, FollowUpTim.

Table for Capacity Module with 12 columns and 4 rows: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.

Table for Level Of Service Module with 12 columns and 10 rows: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 300 824 0    | 0 412 62     | 14 0 163   | 0 0 0 0    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 23.7       | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=1.2]  
 FAIL - Vehicle-hours less than 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=177]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=1775]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 300 824 0    | 0 412 62     | 14 0 163   | 0 0 0 0    |

Major Street Volume: 1598  
 Minor Approach Volume: 177  
 Minor Approach Volume Threshold: 123

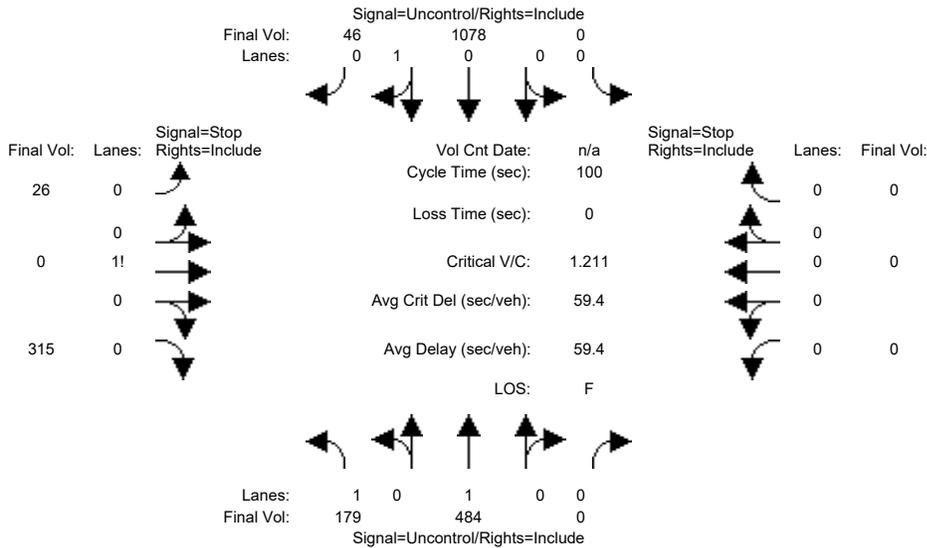
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing PM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 179  | 484  | 0    | 0    | 1078 | 46   | 26   | 0    | 315  | 0    | 0    | 0    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 179  | 484  | 0    | 0    | 1078 | 46   | 26   | 0    | 315  | 0    | 0    | 0    |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 179  | 484  | 0    | 0    | 1078 | 46   | 26   | 0    | 315  | 0    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 179  | 484  | 0    | 0    | 1078 | 46   | 26   | 0    | 315  | 0    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 179  | 484  | 0    | 0    | 1078 | 46   | 26   | 0    | 315  | 0    | 0    | 0    |

Critical Gap Module:

|              |     |      |        |        |      |        |     |     |     |        |      |        |
|--------------|-----|------|--------|--------|------|--------|-----|-----|-----|--------|------|--------|
| Critical Gp: | 4.1 | xxxx | xxxxxx | xxxxxx | xxxx | xxxxxx | 6.4 | 6.5 | 6.2 | xxxxxx | xxxx | xxxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | xxxxxx | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | xxxxxx | xxxx | xxxxxx |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |        |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|--------|
| Cnflct Vol:  | 1124 | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 1943 | 1943 | 1101 | xxxx | xxxx | xxxxxx |
| Potent Cap.: | 629  | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 72   | 66   | 260  | xxxx | xxxx | xxxxxx |
| Move Cap.:   | 629  | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 56   | 47   | 260  | xxxx | xxxx | xxxxxx |
| Volume/Cap:  | 0.28 | xxxx | xxxx   | xxxx | xxxx | xxxx   | 0.46 | 0.00 | 1.21 | xxxx | xxxx | xxxx   |

Level Of Service Module:

|              |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:   | 1.2           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del: | 13.0          | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move: | B             | *             | *             | *             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:    | LT - LTR - RT |
| Shared Cap.: | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 204           | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| SharedQueue: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 22.7          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shrd ConDel: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 364           | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shared LOS:  | *             | *             | *             | *             | *             | *             | *             | F             | *             | *             | *             | *             |
| ApproachDel: | xxxxxxx       |               |               | xxxxxxx       |               |               | 363.8         |               | xxxxxxx       |               |               |               |
| ApproachLOS: | *             |               |               | *             |               |               | F             |               | *             |               |               | *             |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
Intersection #12 Quito Rd & Cox Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 179 484 0    | 0 1078 46    | 26 0 315   | 0 0 0 0    |
| ApproachDel: | xxxxxx       | xxxxxx       | 363.8      | xxxxxx     |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=34.5]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=341]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=2128]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 179 484 0    | 0 1078 46    | 26 0 315   | 0 0 0 0    |

Major Street Volume: 1787  
 Minor Approach Volume: 341  
 Minor Approach Volume Threshold: 85 [less than minimum of 100]

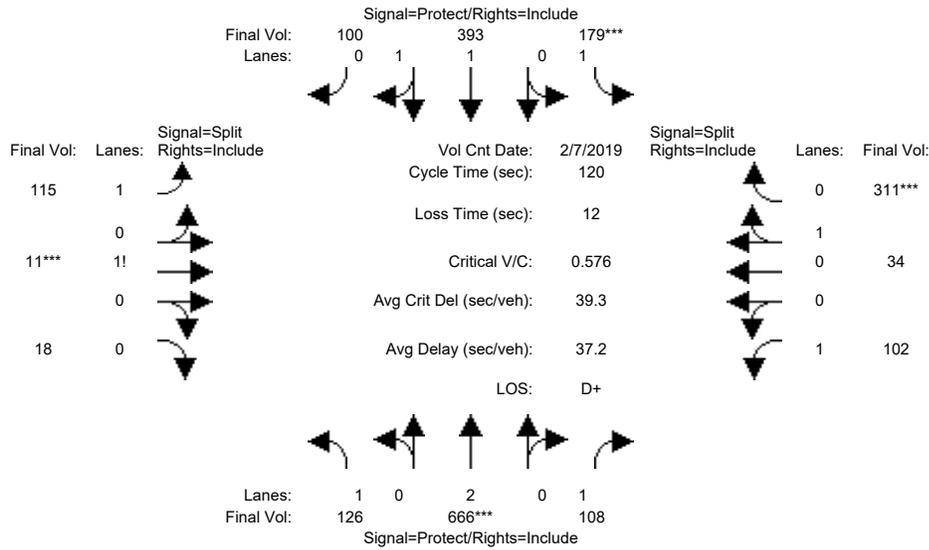
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >>   | Count | Date: | 7 Feb 2019 | <<   | 7:30 AM - 8:30 AM |      |      |      |      |      |      |
|----------------|------|-------|-------|------------|------|-------------------|------|------|------|------|------|------|
| Base Vol:      | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |
| Added Vol:     | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |
| Reduct Vol:    | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 126  | 666   | 108   | 179        | 393  | 100               | 115  | 11   | 18   | 102  | 34   | 311  |

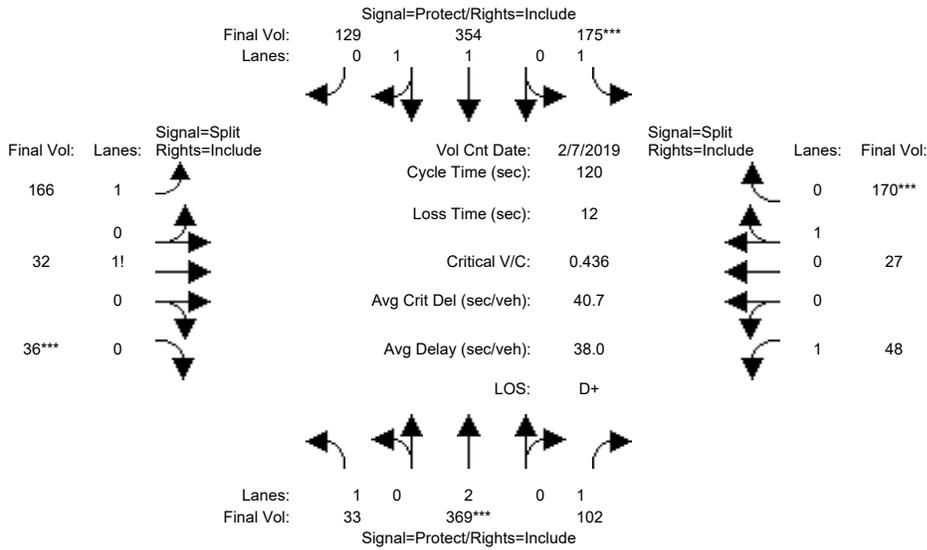
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.58 | 0.42 | 1.66 | 0.13 | 0.21 | 1.00 | 0.10 | 0.90 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2949 | 750  | 2913 | 223  | 364  | 1750 | 177  | 1623 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.18 | 0.06 | 0.10 | 0.13 | 0.13 | 0.04 | 0.05 | 0.05 | 0.06 | 0.19 | 0.19 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 20.3 | 36.5 | 36.5 | 21.3 | 37.5 | 37.5 | 10.3 | 10.3 | 10.3 | 39.9 | 39.9 | 39.9 |
| Volume/Cap:               | 0.43 | 0.58 | 0.20 | 0.58 | 0.43 | 0.43 | 0.46 | 0.58 | 0.58 | 0.18 | 0.58 | 0.58 |
| Uniform Del:              | 44.7 | 35.2 | 31.0 | 45.2 | 32.7 | 32.7 | 52.2 | 52.8 | 52.8 | 28.4 | 33.1 | 33.1 |
| IncrementDel:             | 1.0  | 0.7  | 0.2  | 2.7  | 0.3  | 0.3  | 1.1  | 3.3  | 3.3  | 0.1  | 1.4  | 1.4  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 45.6 | 35.9 | 31.2 | 47.9 | 33.0 | 33.0 | 53.3 | 56.1 | 56.1 | 28.5 | 34.5 | 34.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 45.6 | 35.9 | 31.2 | 47.9 | 33.0 | 33.0 | 53.3 | 56.1 | 56.1 | 28.5 | 34.5 | 34.5 |
| LOS by Move:              | D    | D+   | C    | D    | C-   | C-   | D-   | E+   | E+   | C    | C-   | C-   |
| HCM2kAvgQ:                | 5    | 11   | 3    | 6    | 7    | 7    | 3    | 4    | 4    | 3    | 11   | 11   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >>   | Count | Date: | 7 Feb 2019 | <<   | 4:00 PM - 5:00 PM |      |      |      |      |      |      |
|----------------|------|-------|-------|------------|------|-------------------|------|------|------|------|------|------|
| Base Vol:      | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |
| Added Vol:     | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |
| Reduct Vol:    | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 33   | 369   | 102   | 175        | 354  | 129               | 166  | 32   | 36   | 48   | 27   | 170  |

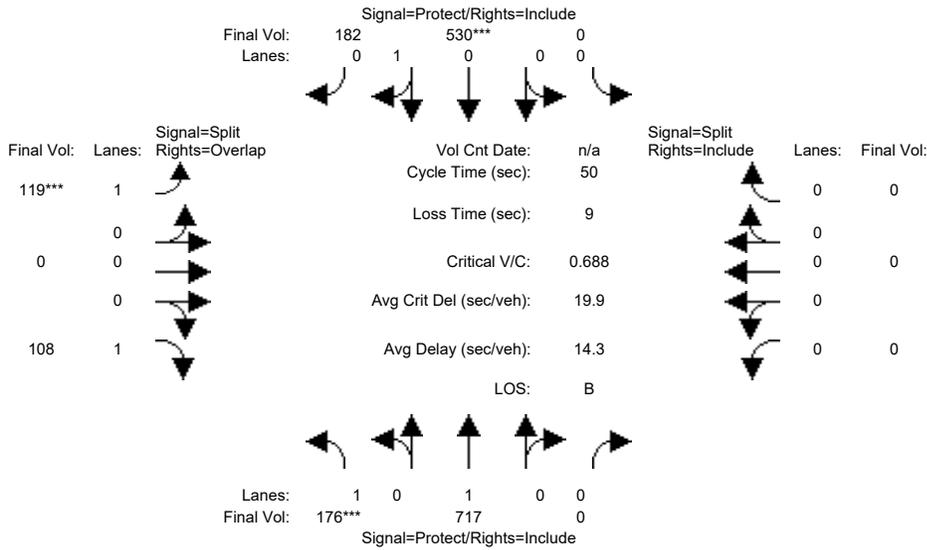
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.45 | 0.55 | 1.55 | 0.21 | 0.24 | 1.00 | 0.14 | 0.86 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2711 | 988  | 2712 | 371  | 417  | 1750 | 247  | 1553 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.02 | 0.10 | 0.06 | 0.10 | 0.13 | 0.13 | 0.06 | 0.09 | 0.09 | 0.03 | 0.11 | 0.11 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 16.7 | 26.7 | 26.7 | 27.5 | 37.5 | 37.5 | 23.7 | 23.7 | 23.7 | 30.1 | 30.1 | 30.1 |
| Volume/Cap:               | 0.14 | 0.44 | 0.26 | 0.44 | 0.42 | 0.42 | 0.31 | 0.44 | 0.44 | 0.11 | 0.44 | 0.44 |
| Uniform Del:              | 45.3 | 40.2 | 38.5 | 39.6 | 32.7 | 32.7 | 41.1 | 42.3 | 42.3 | 34.6 | 37.8 | 37.8 |
| IncrementDel:             | 0.3  | 0.4  | 0.4  | 0.8  | 0.2  | 0.2  | 0.2  | 0.6  | 0.6  | 0.1  | 0.7  | 0.7  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 45.5 | 40.5 | 38.9 | 40.4 | 32.9 | 32.9 | 41.4 | 42.8 | 42.8 | 34.7 | 38.5 | 38.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 45.5 | 40.5 | 38.9 | 40.4 | 32.9 | 32.9 | 41.4 | 42.8 | 42.8 | 34.7 | 38.5 | 38.5 |
| LOS by Move:              | D    | D    | D+   | D    | C-   | C-   | D    | D    | D    | C-   | D+   | D+   |
| HCM2kAvgQ:                | 1    | 6    | 3    | 6    | 7    | 7    | 4    | 6    | 6    | 1    | 6    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #14: Quito Rd & Allendale Ave

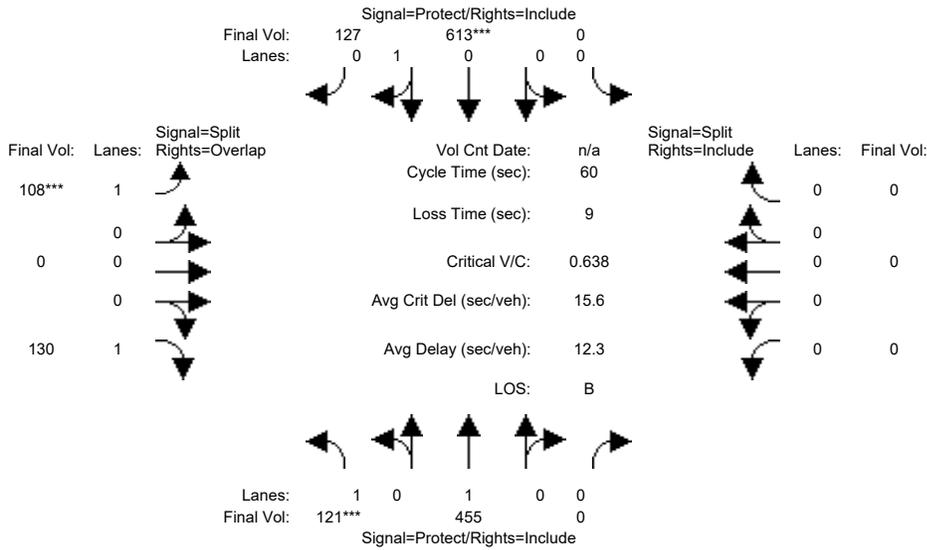


| Street Name:              | Quito Road  |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                 | North Bound |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                 | L           | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:               | 7           | 10   | 0    | 0           | 10   | 10   | 10               | 0    | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |             |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                 | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| Growth Adj:               | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| Added Vol:                | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| User Adj:                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| Reduct Vol:               | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 176         | 717  | 0    | 0           | 530  | 182  | 119              | 0    | 108  | 0          | 0    | 0    |
| Saturation Flow Module:   |             |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                 | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92        | 1.00 | 0.92 | 0.92        | 0.95 | 0.95 | 0.92             | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 1.00        | 1.00 | 0.00 | 0.00        | 0.74 | 0.26 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 1750        | 1900 | 0    | 0           | 1340 | 460  | 1750             | 0    | 1750 | 0          | 0    | 0    |
| Capacity Analysis Module: |             |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                  | 0.10        | 0.38 | 0.00 | 0.00        | 0.40 | 0.40 | 0.07             | 0.00 | 0.06 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ***         |      |      | ****        |      |      | ****             |      |      |            |      |      |
| Green Time:               | 7.0         | 31.0 | 0.0  | 0.0         | 24.0 | 24.0 | 10.0             | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.72        | 0.61 | 0.00 | 0.00        | 0.82 | 0.82 | 0.34             | 0.00 | 0.18 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 20.6        | 5.8  | 0.0  | 0.0         | 11.2 | 11.2 | 17.2             | 0.0  | 11.6 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 9.8         | 0.9  | 0.0  | 0.0         | 6.5  | 6.5  | 0.6              | 0.0  | 0.1  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 30.4        | 6.7  | 0.0  | 0.0         | 17.7 | 17.7 | 17.7             | 0.0  | 11.8 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 30.4        | 6.7  | 0.0  | 0.0         | 17.7 | 17.7 | 17.7             | 0.0  | 11.8 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | C           | A    | A    | A           | B    | B    | B                | A    | B+   | A          | A    | A    |
| HCM2kAvgQ:                | 5           | 8    | 0    | 0           | 11   | 11   | 2                | 0    | 1    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #14: Quito Rd & Allendale Ave



| Street Name: | Quito Road  |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|-------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
|              | North Bound |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Approach:    |             |     |     |             |     |     |                  |     |     |            |     |     |
| Movement:    | L           | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7           | 10  | 0   | 0           | 10  | 10  | 10               | 0   | 10  | 0          | 0   | 0   |
| Y+R:         | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 121  | 455  | 0    | 0    | 613  | 127  | 108  | 0    | 130  | 0    | 0    | 0    |

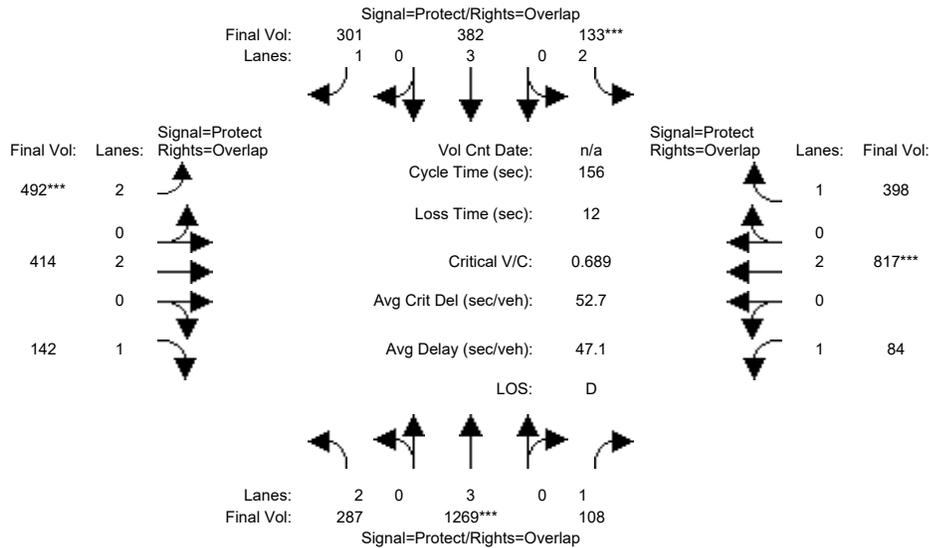
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 1.00 | 0.00 | 0.00 | 0.83 | 0.17 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Final Sat.:             | 1750 | 1900 | 0    | 0    | 1491 | 309  | 1750 | 0    | 1750 | 0    | 0    | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.24 | 0.00 | 0.00 | 0.41 | 0.41 | 0.06 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 |
| Crit Moves:               | ***  |      |      | **** |      |      | **** |      |      |      |      |      |
| Green Time:               | 7.0  | 41.0 | 0.0  | 0.0  | 34.0 | 34.0 | 10.0 | 0.0  | 17.0 | 0.0  | 0.0  | 0.0  |
| Volume/Cap:               | 0.59 | 0.35 | 0.00 | 0.00 | 0.73 | 0.73 | 0.37 | 0.00 | 0.26 | 0.00 | 0.00 | 0.00 |
| Uniform Del:              | 25.1 | 4.0  | 0.0  | 0.0  | 9.6  | 9.6  | 22.2 | 0.0  | 16.6 | 0.0  | 0.0  | 0.0  |
| IncrementDel:             | 4.6  | 0.2  | 0.0  | 0.0  | 2.6  | 2.6  | 0.8  | 0.0  | 0.3  | 0.0  | 0.0  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Delay/Veh:                | 29.8 | 4.1  | 0.0  | 0.0  | 12.2 | 12.2 | 23.0 | 0.0  | 16.9 | 0.0  | 0.0  | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 29.8 | 4.1  | 0.0  | 0.0  | 12.2 | 12.2 | 23.0 | 0.0  | 16.9 | 0.0  | 0.0  | 0.0  |
| LOS by Move:              | C    | A    | A    | A    | B    | B    | C+   | A    | B    | A    | A    | A    |
| HCM2kAvgQ:                | 3    | 4    | 0    | 0    | 11   | 11   | 2    | 0    | 2    | 0    | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 18          | 47  | 47  | 15          | 44  | 44  | 27         | 55  | 55  | 16         | 44  | 44  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 287  | 1269 | 108  | 133  | 382  | 301  | 492  | 414  | 142  | 84   | 817  | 398  |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:      | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 3150 | 5700 | 1750 | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 3800 | 1750 |

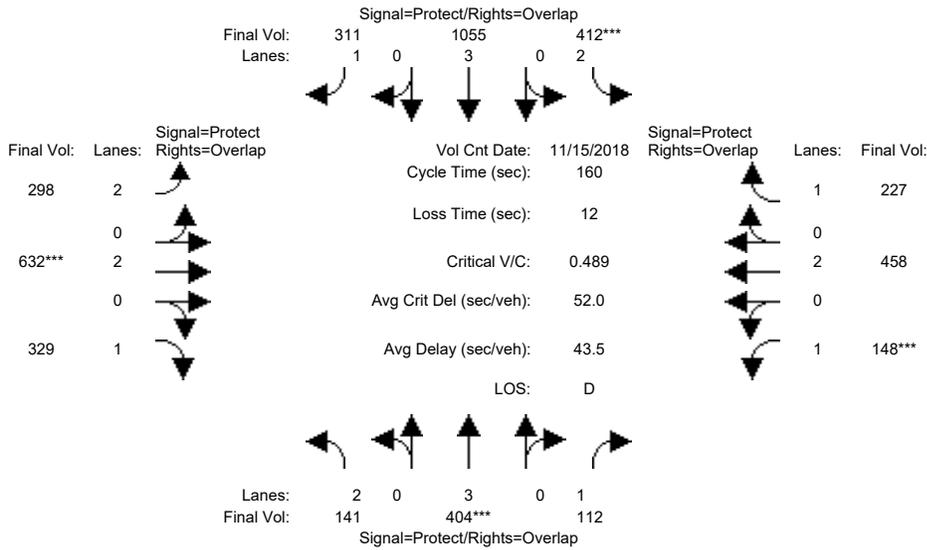
Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.09 | 0.22 | 0.06 | 0.04 | 0.07 | 0.17 | 0.16 | 0.11 | 0.08 | 0.05 | 0.22 | 0.23 |
| Crit Moves:   | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |
| Green Time:   | 18.4 | 48.4 | 66.5 | 15.0 | 45.0 | 78.9 | 33.9 | 62.5 | 80.9 | 18.2 | 46.7 | 61.7 |
| Volume/Cap:   | 0.77 | 0.72 | 0.14 | 0.44 | 0.23 | 0.34 | 0.72 | 0.27 | 0.16 | 0.41 | 0.72 | 0.57 |
| Uniform Del:  | 66.8 | 47.8 | 27.3 | 66.5 | 42.4 | 23.0 | 56.6 | 31.5 | 19.7 | 64.0 | 48.8 | 36.9 |
| IncrementDel: | 9.7  | 1.5  | 0.1  | 1.0  | 0.1  | 0.2  | 3.7  | 0.1  | 0.1  | 1.4  | 2.2  | 1.2  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 76.4 | 49.2 | 27.4 | 67.5 | 42.4 | 23.2 | 60.3 | 31.6 | 19.8 | 65.3 | 51.0 | 38.1 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 76.4 | 49.2 | 27.4 | 67.5 | 42.4 | 23.2 | 60.3 | 31.6 | 19.8 | 65.3 | 51.0 | 38.1 |
| LOS by Move:  | E-   | D    | C    | E    | D    | C    | E    | C    | B-   | E    | D-   | D+   |
| HCM2kAvgQ:    | 8    | 18   | 3    | 4    | 5    | 9    | 13   | 6    | 4    | 4    | 18   | 16   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD

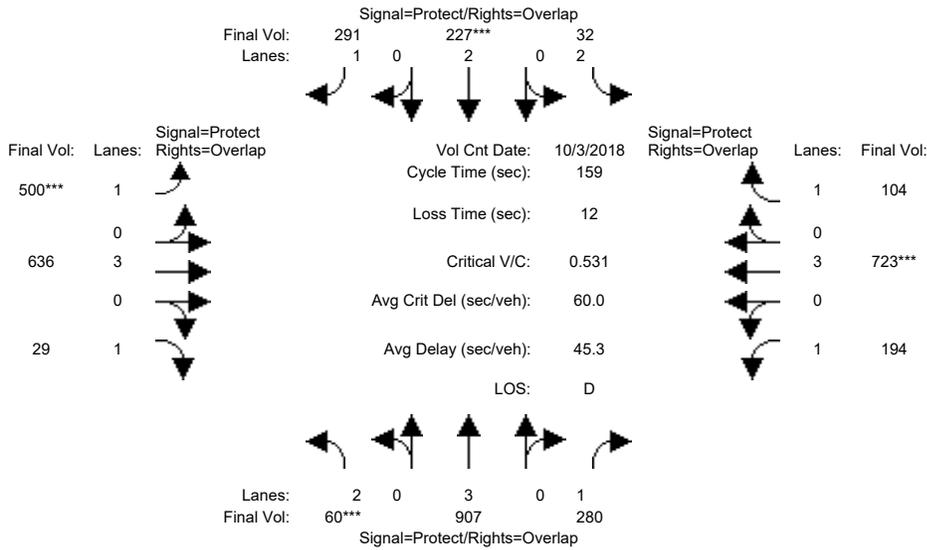


| Approach:                                                   | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
|                                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                                 | 18          | 41   | 41   | 30          | 53   | 53   | 29         | 46   | 46   | 20         | 37   | 37   |
| Y+R:                                                        | 6.3         | 6.2  | 6.2  | 6.3         | 6.2  | 6.2  | 5.3        | 5.8  | 5.8  | 5.3        | 6.0  | 6.0  |
| Volume Module: >> Count Date: 15 Nov 2018 << 4:30 - 5:30 PM |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                                   | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| Growth Adj:                                                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| Added Vol:                                                  | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:                                                | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| User Adj:                                                   | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                 | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| Reduct Vol:                                                 | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| PCE Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                               | 141         | 404  | 112  | 412         | 1055 | 311  | 298        | 632  | 329  | 148        | 458  | 227  |
| Saturation Flow Module:                                     |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                                   | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                 | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                      | 2.00        | 3.00 | 1.00 | 2.00        | 3.00 | 1.00 | 2.00       | 2.00 | 1.00 | 1.00       | 2.00 | 1.00 |
| Final Sat.:                                                 | 3150        | 5700 | 1750 | 3150        | 5700 | 1750 | 3150       | 3800 | 1750 | 1750       | 3800 | 1750 |
| Capacity Analysis Module:                                   |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                                    | 0.04        | 0.07 | 0.06 | 0.13        | 0.19 | 0.18 | 0.09       | 0.17 | 0.19 | 0.08       | 0.12 | 0.13 |
| Crit Moves:                                                 | ****        | **** | **** | ****        | **** | **** | ****       | **** | **** | ****       | **** | **** |
| Green Time:                                                 | 19.7        | 41.0 | 64.7 | 36.7        | 58.0 | 88.9 | 30.9       | 46.6 | 66.3 | 23.7       | 39.4 | 76.1 |
| Volume/Cap:                                                 | 0.36        | 0.28 | 0.16 | 0.57        | 0.51 | 0.32 | 0.49       | 0.57 | 0.45 | 0.57       | 0.49 | 0.27 |
| Uniform Del:                                                | 64.4        | 47.6 | 30.3 | 54.7        | 39.9 | 19.2 | 57.5       | 48.2 | 33.8 | 63.4       | 51.7 | 25.3 |
| IncrementDel:                                               | 0.6         | 0.1  | 0.1  | 1.1         | 0.2  | 0.2  | 0.6        | 0.7  | 0.5  | 3.0        | 0.4  | 0.2  |
| InitQueueDel:                                               | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                  | 1.00        | 1.00 | 0.89 | 1.00        | 0.93 | 0.67 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                  | 65.0        | 47.7 | 27.1 | 55.8        | 37.4 | 13.1 | 58.1       | 48.9 | 34.2 | 66.4       | 52.1 | 25.5 |
| User DelAdj:                                                | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                 | 65.0        | 47.7 | 27.1 | 55.8        | 37.4 | 13.1 | 58.1       | 48.9 | 34.2 | 66.4       | 52.1 | 25.5 |
| LOS by Move:                                                | E           | D    | C    | E+          | D+   | B    | E+         | D    | C-   | E          | D-   | C    |
| HCM2kAvgQ:                                                  | 4           | 5    | 3    | 11          | 12   | 6    | 8          | 13   | 12   | 8          | 10   | 7    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing AM

Intersection #5640: LAWRENCE EXPWY/SARATOGA

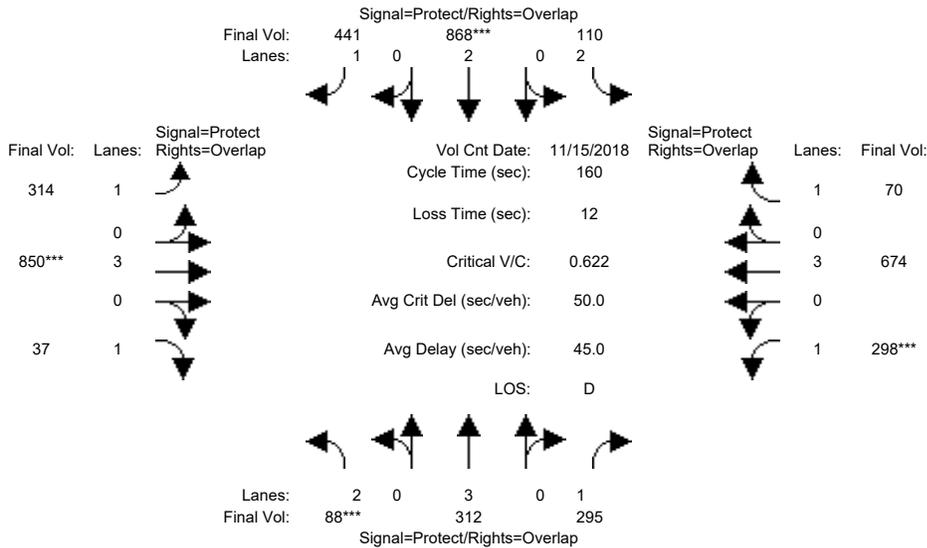


| Approach:                                             | North Bound |      |      | South Bound |      |       | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------|-------------|------|------|-------------|------|-------|------------|------|------|------------|------|------|
|                                                       | L           | T    | R    | L           | T    | R     | L          | T    | R    | L          | T    | R    |
| Min. Green:                                           | 10          | 58   | 58   | 3           | 52   | 52    | 38         | 55   | 55   | 19         | 36   | 36   |
| Y+R:                                                  | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0   | 4.0        | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: 3 Oct 2018 << 7:45-8:45 |             |      |      |             |      |       |            |      |      |            |      |      |
| Base Vol:                                             | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| Growth Adj:                                           | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                          | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| Added Vol:                                            | 0           | 0    | 0    | 0           | 0    | 0     | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:                                          | 0           | 0    | 0    | 0           | 0    | 0     | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                          | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| User Adj:                                             | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                           | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| Reduct Vol:                                           | 0           | 0    | 0    | 0           | 0    | 0     | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                          | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| PCE Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:                                          | 60          | 907  | 280  | 32          | 227  | 291   | 500        | 636  | 29   | 194        | 723  | 104  |
| Saturation Flow Module:                               |             |      |      |             |      |       |            |      |      |            |      |      |
| Sat/Lane:                                             | 1900        | 1900 | 1900 | 1900        | 1900 | 1900  | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                           | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92  | 0.92       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00  | 1.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                           | 3150        | 5700 | 1750 | 3150        | 3800 | 1750  | 1750       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                             |             |      |      |             |      |       |            |      |      |            |      |      |
| Vol/Sat:                                              | 0.02        | 0.16 | 0.16 | 0.01        | 0.06 | 0.17  | 0.29       | 0.11 | 0.02 | 0.11       | 0.13 | 0.06 |
| Crit Moves:                                           | ****        |      |      | ****        |      |       | ****       |      |      | ****       |      |      |
| Green Time:                                           | 10.0        | 59.0 | 80.8 | 3.0         | 52.0 | 101.0 | 49.0       | 63.2 | 73.2 | 21.8       | 36.0 | 39.0 |
| Volume/Cap:                                           | 0.30        | 0.43 | 0.31 | 0.53        | 0.18 | 0.26  | 0.93       | 0.28 | 0.04 | 0.81       | 0.56 | 0.24 |
| Uniform Del:                                          | 71.2        | 37.4 | 22.9 | 77.3        | 38.3 | 12.7  | 53.3       | 32.5 | 23.6 | 66.6       | 54.5 | 48.1 |
| IncrementDel:                                         | 0.9         | 0.1  | 0.2  | 8.6         | 0.1  | 0.1   | 22.3       | 0.1  | 0.0  | 18.0       | 0.6  | 0.3  |
| InitQueueDel:                                         | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0   | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                            | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                            | 72.0        | 37.6 | 23.1 | 85.9        | 38.4 | 12.8  | 75.6       | 32.6 | 23.6 | 84.6       | 55.0 | 48.4 |
| User DelAdj:                                          | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                           | 72.0        | 37.6 | 23.1 | 85.9        | 38.4 | 12.8  | 75.6       | 32.6 | 23.6 | 84.6       | 55.0 | 48.4 |
| LOS by Move:                                          | E           | D+   | C    | F           | D+   | B     | E-         | C-   | C    | F          | E+   | D    |
| HCM2kAvgQ:                                            | 2           | 10   | 8    | 1           | 4    | 6     | 28         | 7    | 1    | 12         | 11   | 4    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing PM

Intersection #5640: LAWRENCE EXPWY/SARATOGA



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 12          | 54  | 54  | 15          | 58  | 58  | 31         | 40  | 40  | 27         | 36  | 36  |
| Y+R:        | 5.4         | 6.2 | 6.2 | 5.6         | 6.2 | 6.2 | 6.0        | 6.0 | 6.0 | 6.0        | 5.8 | 5.8 |

| Volume Module: | >>   | Count | Date: | 15 Nov 2018 | <<   | 5:00 - 6:00 PM |      |      |      |      |      |      |  |  |  |  |  |
|----------------|------|-------|-------|-------------|------|----------------|------|------|------|------|------|------|--|--|--|--|--|
| Base Vol:      | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |  |  |  |  |  |
| Initial Bse:   | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |
| Added Vol:     | 0    | 0     | 0     | 0           | 0    | 0              | 0    | 0    | 0    | 0    | 0    | 0    |  |  |  |  |  |
| PasserByVol:   | 0    | 0     | 0     | 0           | 0    | 0              | 0    | 0    | 0    | 0    | 0    | 0    |  |  |  |  |  |
| Initial Fut:   | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |  |  |  |  |  |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |  |  |  |  |  |
| PHF Volume:    | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |
| Reduct Vol:    | 0    | 0     | 0     | 0           | 0    | 0              | 0    | 0    | 0    | 0    | 0    | 0    |  |  |  |  |  |
| Reduced Vol:   | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |  |  |  |  |  |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |  |  |  |  |  |
| FinalVolume:   | 88   | 312   | 295   | 110         | 868  | 441            | 314  | 850  | 37   | 298  | 674  | 70   |  |  |  |  |  |

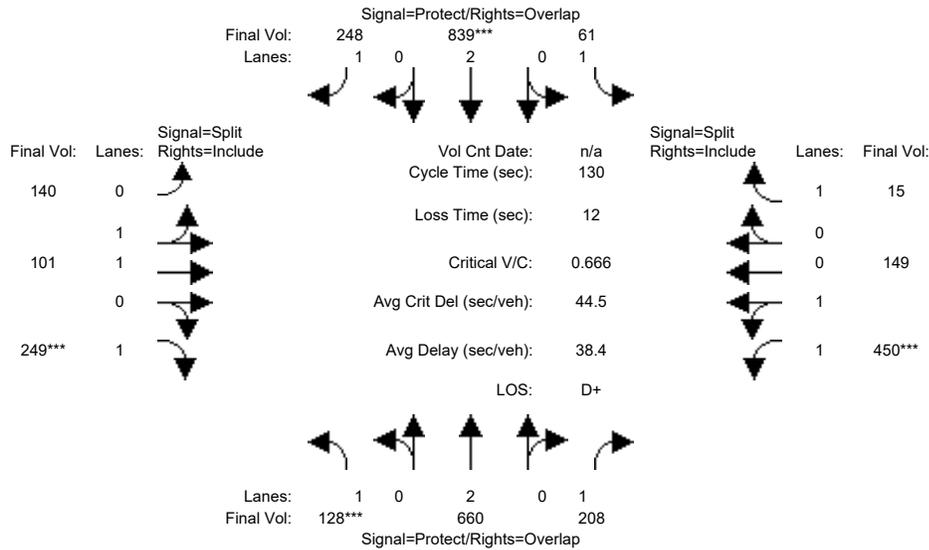
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 |
| Final Sat.:             | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 5700 | 1750 | 1750 | 5700 | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.03 | 0.05 | 0.17 | 0.03 | 0.23 | 0.25 | 0.18 | 0.15 | 0.02 | 0.17 | 0.12 | 0.04 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 12.0 | 54.8 | 92.8 | 15.2 | 58.0 | 94.1 | 36.1 | 40.0 | 52.0 | 38.0 | 41.9 | 57.1 |
| Volume/Cap:               | 0.37 | 0.16 | 0.29 | 0.37 | 0.63 | 0.43 | 0.80 | 0.60 | 0.07 | 0.72 | 0.45 | 0.11 |
| Uniform Del:              | 70.4 | 36.6 | 17.0 | 67.9 | 42.1 | 18.1 | 58.5 | 52.9 | 37.2 | 56.1 | 49.4 | 34.4 |
| IncrcmntDel:              | 1.0  | 0.0  | 0.2  | 0.8  | 0.9  | 0.3  | 10.7 | 0.7  | 0.0  | 5.9  | 0.2  | 0.1  |
| InitQueuDel:              | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.09 | 1.36 | 1.00 | 0.93 | 0.60 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 71.4 | 40.0 | 23.2 | 68.6 | 40.2 | 11.2 | 69.2 | 53.6 | 37.3 | 62.0 | 49.6 | 34.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 71.4 | 40.0 | 23.2 | 68.6 | 40.2 | 11.2 | 69.2 | 53.6 | 37.3 | 62.0 | 49.6 | 34.5 |
| LOS by Move:              | E    | D    | C    | E    | D    | B+   | E    | D-   | D+   | E    | D    | C-   |
| HCM2kAvgQ:                | 2    | 4    | 10   | 3    | 15   | 8    | 16   | 12   | 1    | 15   | 9    | 2    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | Saratoga Avenue North |      |      | Saratoga Avenue South |      |      | Cox Avenue East |      |      | Cox Avenue West |      |      |
|----------------|-----------------------|------|------|-----------------------|------|------|-----------------|------|------|-----------------|------|------|
| Base Vol:      | 128                   | 637  | 202  | 59                    | 832  | 245  | 126             | 94   | 249  | 435             | 142  | 10   |
| Growth Adj:    | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| Initial Bse:   | 128                   | 637  | 202  | 59                    | 832  | 245  | 126             | 94   | 249  | 435             | 142  | 10   |
| Added Vol:     | 0                     | 23   | 6    | 2                     | 7    | 3    | 14              | 7    | 0    | 15              | 7    | 5    |
| PasserByVol:   | 0                     | 0    | 0    | 0                     | 0    | 0    | 0               | 0    | 0    | 0               | 0    | 0    |
| Initial Fut:   | 128                   | 660  | 208  | 61                    | 839  | 248  | 140             | 101  | 249  | 450             | 149  | 15   |
| User Adj:      | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| PHF Adj:       | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| PHF Volume:    | 128                   | 660  | 208  | 61                    | 839  | 248  | 140             | 101  | 249  | 450             | 149  | 15   |
| Reduct Vol:    | 0                     | 0    | 0    | 0                     | 0    | 0    | 0               | 0    | 0    | 0               | 0    | 0    |
| Reduced Vol:   | 128                   | 660  | 208  | 61                    | 839  | 248  | 140             | 101  | 249  | 450             | 149  | 15   |
| PCE Adj:       | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| MLF Adj:       | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| Final Volume:  | 128                   | 660  | 208  | 61                    | 839  | 248  | 140             | 101  | 249  | 450             | 149  | 15   |

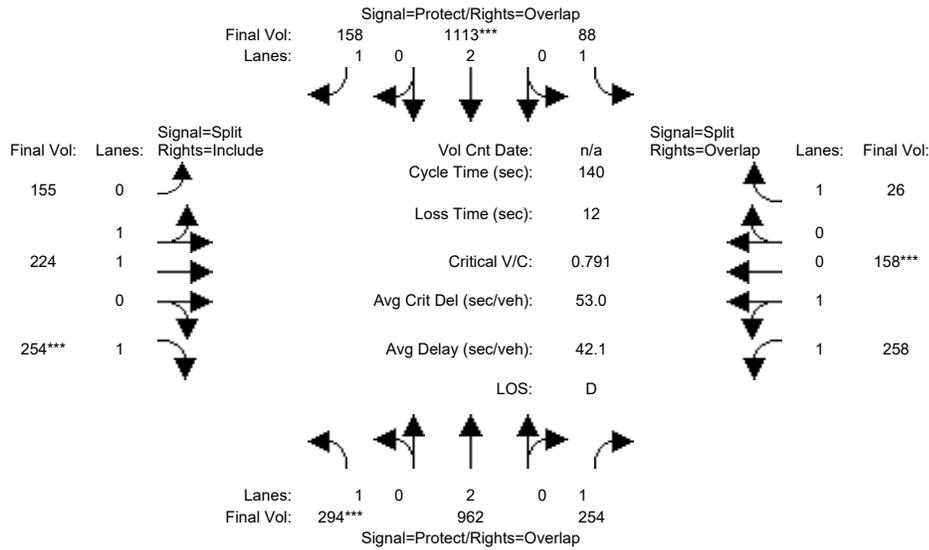
| Saturation Flow Module: | Saratoga Avenue North |      |      | Saratoga Avenue South |      |      | Cox Avenue East |      |      | Cox Avenue West |      |      |
|-------------------------|-----------------------|------|------|-----------------------|------|------|-----------------|------|------|-----------------|------|------|
| Sat/Lane:               | 1900                  | 1900 | 1900 | 1900                  | 1900 | 1900 | 1900            | 1900 | 1900 | 1900            | 1900 | 1900 |
| Adjustment:             | 0.92                  | 1.00 | 0.92 | 0.92                  | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.93            | 0.95 | 0.92 |
| Lanes:                  | 1.00                  | 2.00 | 1.00 | 1.00                  | 2.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.51            | 0.49 | 1.00 |
| Final Sat.:             | 1750                  | 3800 | 1750 | 1750                  | 3800 | 1750 | 1750            | 1900 | 1750 | 2667            | 883  | 1750 |

| Capacity Analysis Module: | Saratoga Avenue North |      |      | Saratoga Avenue South |      |      | Cox Avenue East |      |      | Cox Avenue West |      |      |
|---------------------------|-----------------------|------|------|-----------------------|------|------|-----------------|------|------|-----------------|------|------|
| Vol/Sat:                  | 0.07                  | 0.17 | 0.12 | 0.03                  | 0.22 | 0.14 | 0.08            | 0.05 | 0.14 | 0.17            | 0.17 | 0.01 |
| Crit Moves:               | ****                  |      |      |                       | **** |      |                 |      | **** | ****            |      |      |
| Green Time:               | 14.3                  | 43.8 | 76.7 | 13.6                  | 43.1 | 70.8 | 27.8            | 27.8 | 27.8 | 32.9            | 32.9 | 32.9 |
| Volume/Cap:               | 0.67                  | 0.52 | 0.20 | 0.33                  | 0.67 | 0.26 | 0.37            | 0.25 | 0.67 | 0.67            | 0.67 | 0.03 |
| Uniform Del:              | 55.6                  | 34.6 | 12.4 | 54.0                  | 37.3 | 15.7 | 43.7            | 42.5 | 46.9 | 43.6            | 43.6 | 36.6 |
| IncrementDel:             | 8.6                   | 0.4  | 0.1  | 1.1                   | 1.4  | 0.1  | 0.4             | 0.1  | 4.5  | 1.9             | 1.9  | 0.0  |
| InitQueueDel:             | 0.0                   | 0.0  | 0.0  | 0.0                   | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  |
| Delay Adj:                | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| Delay/Veh:                | 64.2                  | 35.0 | 12.5 | 55.1                  | 38.7 | 15.8 | 44.1            | 42.6 | 51.4 | 45.5            | 45.5 | 36.6 |
| User DelAdj:              | 1.00                  | 1.00 | 1.00 | 1.00                  | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 |
| AdjDel/Veh:               | 64.2                  | 35.0 | 12.5 | 55.1                  | 38.7 | 15.8 | 44.1            | 42.6 | 51.4 | 45.5            | 45.5 | 36.6 |
| LOS by Move:              | E                     | C-   | B    | E+                    | D+   | B    | D               | D    | D-   | D               | D    | D+   |
| HCM2kAvgQ:                | 5                     | 10   | 4    | 2                     | 14   | 5    | 5               | 3    | 11   | 12              | 12   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 294  | 949  | 237  | 83   | 1091 | 146  | 149  | 216  | 254  | 249  | 151  | 23   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 294  | 949  | 237  | 83   | 1091 | 146  | 149  | 216  | 254  | 249  | 151  | 23   |
| Added Vol:     | 0    | 13   | 17   | 5    | 22   | 12   | 6    | 8    | 0    | 9    | 7    | 3    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 294  | 962  | 254  | 88   | 1113 | 158  | 155  | 224  | 254  | 258  | 158  | 26   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 294  | 962  | 254  | 88   | 1113 | 158  | 155  | 224  | 254  | 258  | 158  | 26   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 294  | 962  | 254  | 88   | 1113 | 158  | 155  | 224  | 254  | 258  | 158  | 26   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 294  | 962  | 254  | 88   | 1113 | 158  | 155  | 224  | 254  | 258  | 158  | 26   |

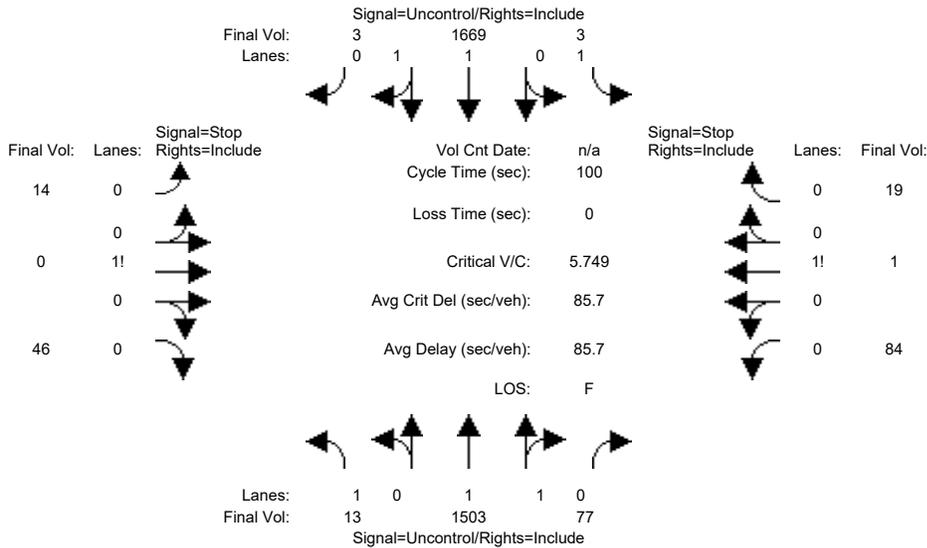
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.95 | 0.99 | 0.92 | 0.93 | 0.95 | 0.92 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 0.84 | 1.16 | 1.00 | 1.25 | 0.75 | 1.00 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1512 | 2186 | 1750 | 2201 | 1348 | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.17 | 0.25 | 0.15 | 0.05 | 0.29 | 0.09 | 0.10 | 0.10 | 0.15 | 0.12 | 0.12 | 0.01 |
| Crit Moves:               | ***  |      |      |      | **** |      |      |      | **** |      | **** |      |
| Green Time:               | 29.7 | 68.1 | 88.8 | 13.5 | 51.8 | 77.5 | 25.7 | 25.7 | 25.7 | 20.7 | 20.7 | 34.3 |
| Volume/Cap:               | 0.79 | 0.52 | 0.23 | 0.52 | 0.79 | 0.16 | 0.56 | 0.56 | 0.79 | 0.79 | 0.79 | 0.06 |
| Uniform Del:              | 52.2 | 24.8 | 11.0 | 60.2 | 39.3 | 15.3 | 52.0 | 52.0 | 54.6 | 57.5 | 57.5 | 40.5 |
| IncrementDel:             | 11.0 | 0.3  | 0.1  | 2.9  | 3.1  | 0.1  | 1.0  | 1.0  | 12.5 | 8.0  | 8.0  | 0.1  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 63.2 | 25.0 | 11.1 | 63.1 | 42.4 | 15.4 | 53.0 | 53.0 | 67.1 | 65.5 | 65.5 | 40.6 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 63.2 | 25.0 | 11.1 | 63.1 | 42.4 | 15.4 | 53.0 | 53.0 | 67.1 | 65.5 | 65.5 | 40.6 |
| LOS by Move:              | E    | C    | B+   | E    | D    | B    | D-   | D-   | E    | E    | E    | D    |
| HCM2kAvgQ:                | 13   | 14   | 5    | 4    | 21   | 3    | 8    | 8    | 13   | 11   | 11   | 1    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing + Project AM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 3    | 1488 | 77   | 3    | 1650 | 0    | 0    | 0    | 0    | 84   | 1    | 19   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 3    | 1488 | 77   | 3    | 1650 | 0    | 0    | 0    | 0    | 84   | 1    | 19   |
| Added Vol:   | 10   | 15   | 0    | 0    | 19   | 3    | 14   | 0    | 46   | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 13   | 1503 | 77   | 3    | 1669 | 3    | 14   | 0    | 46   | 84   | 1    | 19   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 13   | 1503 | 77   | 3    | 1669 | 3    | 14   | 0    | 46   | 84   | 1    | 19   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 13   | 1503 | 77   | 3    | 1669 | 3    | 14   | 0    | 46   | 84   | 1    | 19   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|------|
| Cnflct Vol:  | 1672 | xxxx | xxxxxx | 1580 | xxxx | xxxxxx | 2455 | 3283 | 836  | 2408 | 3246 | 790  |
| Potent Cap.: | 389  | xxxx | xxxxxx | 422  | xxxx | xxxxxx | 16   | 9    | 315  | 18   | 10   | 337  |
| Move Cap.:   | 389  | xxxx | xxxxxx | 422  | xxxx | xxxxxx | 14   | 9    | 315  | 15   | 9    | 337  |
| Volume/Cap:  | 0.03 | xxxx | xxxx   | 0.01 | xxxx | xxxx   | 1.03 | 0.00 | 0.15 | 5.75 | 0.11 | 0.06 |

Level Of Service Module:

|              |               |      |        |               |      |        |               |      |        |               |      |        |
|--------------|---------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| 2Way95thQ:   | 0.1           | xxxx | xxxxxx | 0.0           | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx |
| Control Del: | 14.6          | xxxx | xxxxxx | 13.6          | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx |
| LOS by Move: | B             | *    | *      | B             | *    | *      | *             | *    | *      | *             | *    | *      |
| Movement:    | LT - LTR - RT |      |        |
| Shared Cap.: | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | 51   | xxxxxx | xxxx          | 18   | xxxxxx |
| SharedQueue: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 5.3  | xxxxxx | xxxxxx        | 13.7 | xxxxxx |
| Shrd ConDel: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 311  | xxxxxx | xxxxxx        | 2645 | xxxxxx |
| Shared LOS:  | *             | *    | *      | *             | *    | *      | *             | F    | *      | *             | F    | *      |
| ApproachDel: | xxxxxxx       |      |        | xxxxxxx       |      |        | 311.1         |      |        | 2645.4        |      |        |
| ApproachLOS: | *             |      |        | *             |      |        | F             |      |        | F             |      |        |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

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Intersection #8 Saratoga Ave & McFarland Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 13 1503 77   | 3 1669 3     | 14 0 46    | 84 1 19    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 311.1      | 2645.4     |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=5.2]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=60]  
FAIL - Approach volume less than 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=3432]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=76.4]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=104]  
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=3432]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER  
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #8 Saratoga Ave & McFarland Ave  
\*\*\*\*\*  
Future Volume Alternative: Peak Hour Warrant Met

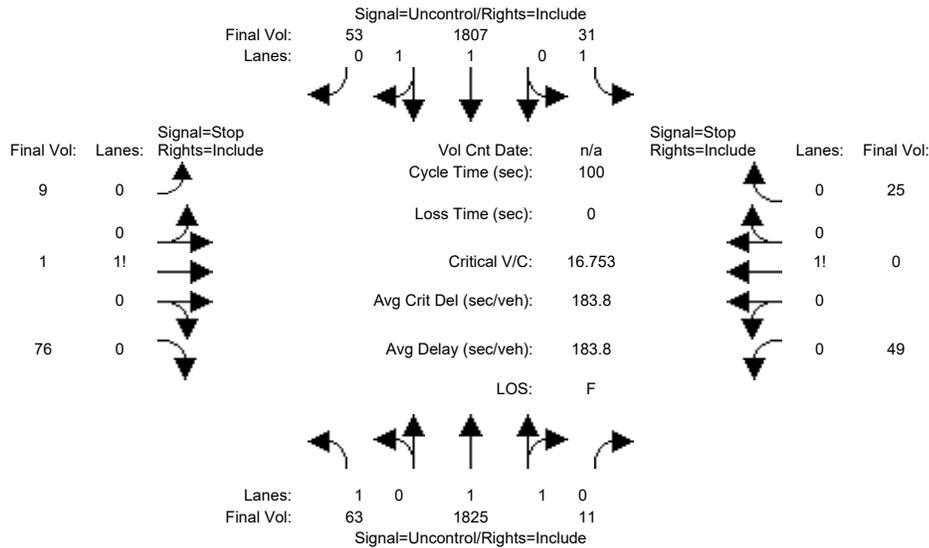
| Approach:                        | North Bound                     | South Bound  | East Bound | West Bound |
|----------------------------------|---------------------------------|--------------|------------|------------|
| Movement:                        | L - T - R                       | L - T - R    | L - T - R  | L - T - R  |
| Control:                         | Uncontrolled                    | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:                           | 1 0 1 1 0                       | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol:                     | 13 1503 77                      | 3 1669 3     | 14 0 46    | 84 1 19    |
| Major Street Volume:             | 3268                            |              |            |            |
| Minor Approach Volume:           | 104                             |              |            |            |
| Minor Approach Volume Threshold: | -123 [less than minimum of 100] |              |            |            |

SIGNAL WARRANT DISCLAIMER  
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing + Project PM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:     | 26   | 1802 | 11   | 31   | 1788 | 41   | 3    | 1    | 56   | 49   | 0    | 25   |
| Growth Adj:   | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:  | 26   | 1802 | 11   | 31   | 1788 | 41   | 3    | 1    | 56   | 49   | 0    | 25   |
| Added Vol:    | 37   | 23   | 0    | 0    | 19   | 12   | 6    | 0    | 20   | 0    | 0    | 0    |
| PasserByVol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:  | 63   | 1825 | 11   | 31   | 1807 | 53   | 9    | 1    | 76   | 49   | 0    | 25   |
| User Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:   | 63   | 1825 | 11   | 31   | 1807 | 53   | 9    | 1    | 76   | 49   | 0    | 25   |
| Reduct Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Final Volume: | 63   | 1825 | 11   | 31   | 1807 | 53   | 9    | 1    | 76   | 49   | 0    | 25   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |       |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|-------|------|------|
| Cnflct Vol:  | 1860 | xxxx | xxxxxx | 1836 | xxxx | xxxxxx | 2934 | 3858 | 930  | 2923  | 3879 | 918  |
| Potent Cap.: | 329  | xxxx | xxxxxx | 336  | xxxx | xxxxxx | 7    | 4    | 273  | 7     | 4    | 278  |
| Move Cap.:   | 329  | xxxx | xxxxxx | 336  | xxxx | xxxxxx | 5    | 3    | 273  | 3     | 3    | 278  |
| Volume/Cap:  | 0.19 | xxxx | xxxx   | 0.09 | xxxx | xxxx   | 1.80 | 0.37 | 0.28 | 16.75 | 0.00 | 0.09 |

Level Of Service Module:

|              |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:   | 0.7           | xxxx          | xxxxxx        | 0.3           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del: | 18.5          | xxxx          | xxxxxx        | 16.8          | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move: | C             | *             | *             | C             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:    | LT - LTR - RT |
| Shared Cap.: | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 35            | xxxxxx        | xxxx          | 4             | xxxxxx        |
| SharedQueue: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 9.7           | xxxxxx        | xxxxxx        | 11.2          | xxxxxx        |
| Shrd ConDel: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 903           | xxxxxx        | xxxxxx        | 8738          | xxxxxx        |
| Shared LOS:  | *             | *             | *             | *             | *             | *             | *             | F             | *             | *             | F             | *             |
| ApproachDel: | xxxxxxx       |               | xxxxxxx       |               |               |               | 903.3         |               |               | 8738.3        |               |               |
| ApproachLOS: | *             |               | *             |               |               |               | F             |               |               | F             |               |               |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

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 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 63 1825 11   | 31 1807 53   | 9 1 76     | 49 0 25    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 903.3      | 8738.3     |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=21.6]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=86]  
FAIL - Approach volume less than 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=3950]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=179.6]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=74]  
FAIL - Approach volume less than 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=3950]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER  
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #8 Saratoga Ave & McFarland Ave  
\*\*\*\*\*  
Future Volume Alternative: Peak Hour Warrant NOT Met

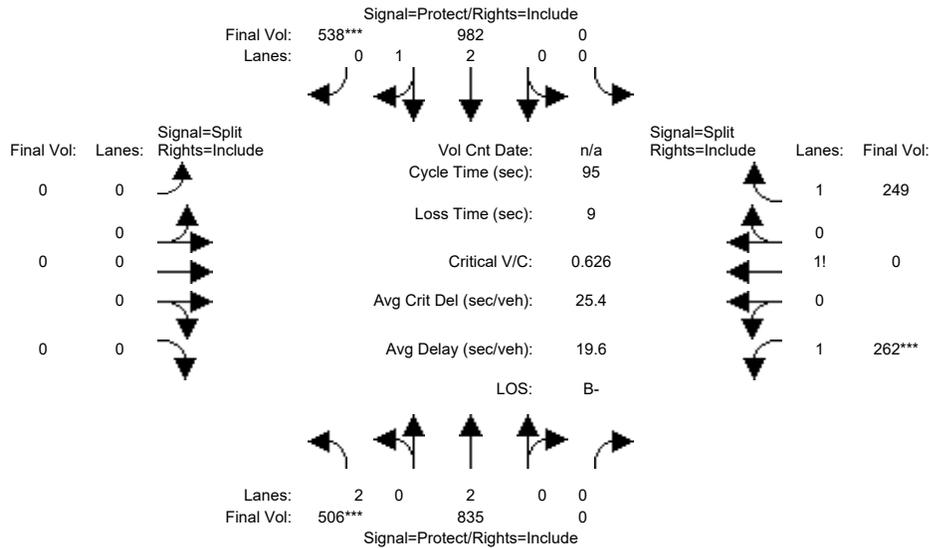
| Approach:                        | North Bound                     | South Bound  | East Bound | West Bound |
|----------------------------------|---------------------------------|--------------|------------|------------|
| Movement:                        | L - T - R                       | L - T - R    | L - T - R  | L - T - R  |
| Control:                         | Uncontrolled                    | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:                           | 1 0 1 1 0                       | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol:                     | 63 1825 11                      | 31 1807 53   | 9 1 76     | 49 0 25    |
| Major Street Volume:             | 3790                            |              |            |            |
| Minor Approach Volume:           | 86                              |              |            |            |
| Minor Approach Volume Threshold: | -174 [less than minimum of 100] |              |            |            |

SIGNAL WARRANT DISCLAIMER  
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 501  | 814  | 0    | 0    | 938  | 517  | 0    | 0    | 0    | 261  | 0    | 245  |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 501  | 814  | 0    | 0    | 938  | 517  | 0    | 0    | 0    | 261  | 0    | 245  |
| Added Vol:     | 5    | 21   | 0    | 0    | 44   | 21   | 0    | 0    | 0    | 1    | 0    | 4    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 506  | 835  | 0    | 0    | 982  | 538  | 0    | 0    | 0    | 262  | 0    | 249  |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 506  | 835  | 0    | 0    | 982  | 538  | 0    | 0    | 0    | 262  | 0    | 249  |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 506  | 835  | 0    | 0    | 982  | 538  | 0    | 0    | 0    | 262  | 0    | 249  |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 506  | 835  | 0    | 0    | 982  | 538  | 0    | 0    | 0    | 262  | 0    | 249  |

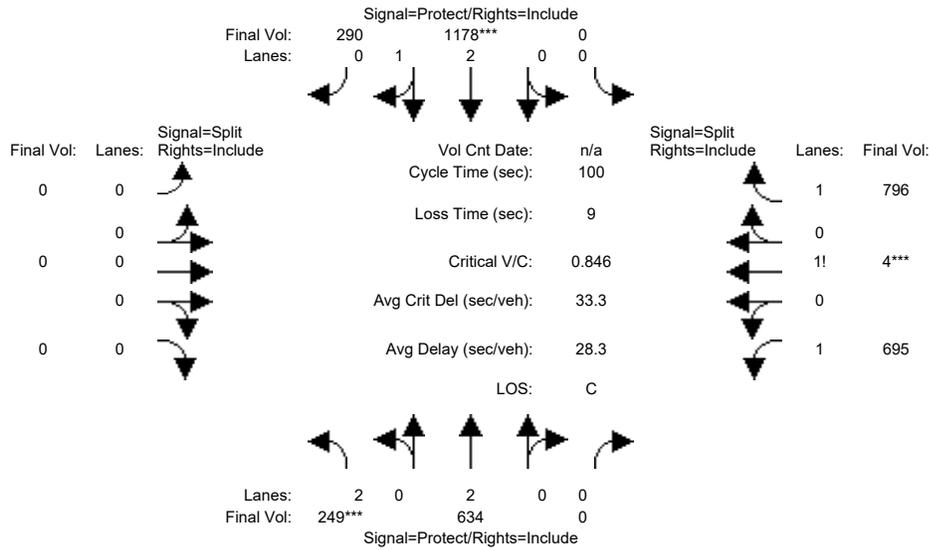
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 2.00 | 2.00 | 0.00 | 0.00 | 2.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.51 | 0.00 | 1.49 |
| Final Sat.:             | 3150 | 3800 | 0    | 0    | 3800 | 1750 | 0    | 0    | 0    | 2647 | 0    | 2603 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.16 | 0.22 | 0.00 | 0.00 | 0.26 | 0.31 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.10 |
| Crit Moves:               | **** |      |      |      |      | **** |      |      |      | **** |      |      |
| Green Time:               | 24.4 | 71.0 | 0.0  | 0.0  | 46.6 | 46.6 | 0.0  | 0.0  | 0.0  | 15.0 | 0.0  | 15.0 |
| Volume/Cap:               | 0.63 | 0.29 | 0.00 | 0.00 | 0.53 | 0.63 | 0.00 | 0.00 | 0.00 | 0.63 | 0.00 | 0.61 |
| Uniform Del:              | 31.3 | 3.9  | 0.0  | 0.0  | 16.6 | 17.8 | 0.0  | 0.0  | 0.0  | 37.4 | 0.0  | 37.2 |
| IncrementDel:             | 1.6  | 0.1  | 0.0  | 0.0  | 0.2  | 0.5  | 0.0  | 0.0  | 0.0  | 1.5  | 0.0  | 1.3  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Delay/Veh:                | 32.8 | 3.9  | 0.0  | 0.0  | 16.8 | 18.3 | 0.0  | 0.0  | 0.0  | 38.9 | 0.0  | 38.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 32.8 | 3.9  | 0.0  | 0.0  | 16.8 | 18.3 | 0.0  | 0.0  | 0.0  | 38.9 | 0.0  | 38.5 |
| LOS by Move:              | C-   | A    | A    | A    | B    | B-   | A    | A    | A    | D+   | A    | D+   |
| HCM2kAvgQ:                | 8    | 4    | 0    | 0    | 9    | 12   | 0    | 0    | 0    | 6    | 0    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 246  | 586  | 0    | 0    | 1149 | 279  | 0    | 0    | 0    | 692  | 4    | 784  |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 246  | 586  | 0    | 0    | 1149 | 279  | 0    | 0    | 0    | 692  | 4    | 784  |
| Added Vol:     | 3    | 48   | 0    | 0    | 29   | 11   | 0    | 0    | 0    | 3    | 0    | 12   |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 249  | 634  | 0    | 0    | 1178 | 290  | 0    | 0    | 0    | 695  | 4    | 796  |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 249  | 634  | 0    | 0    | 1178 | 290  | 0    | 0    | 0    | 695  | 4    | 796  |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 249  | 634  | 0    | 0    | 1178 | 290  | 0    | 0    | 0    | 695  | 4    | 796  |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 249  | 634  | 0    | 0    | 1178 | 290  | 0    | 0    | 0    | 695  | 4    | 796  |

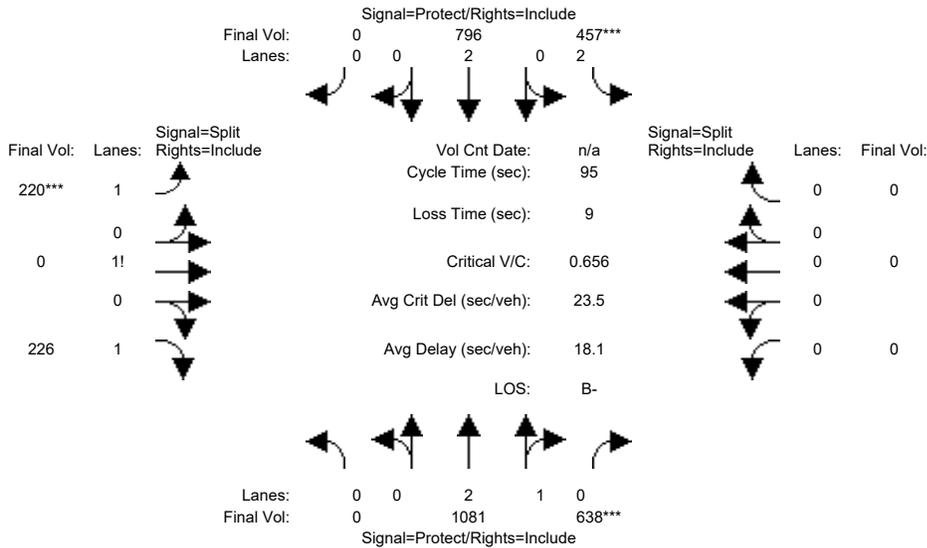
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.92 | 0.99 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 0.92 |
| Lanes:                  | 2.00 | 2.00 | 0.00 | 0.00 | 2.39 | 0.61 | 0.00 | 0.00 | 0.00 | 1.46 | 0.01 | 1.53 |
| Final Sat.:             | 3150 | 3800 | 0    | 0    | 4492 | 1106 | 0    | 0    | 0    | 2561 | 9    | 2679 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.08 | 0.17 | 0.00 | 0.00 | 0.26 | 0.26 | 0.00 | 0.00 | 0.00 | 0.27 | 0.43 | 0.30 |
| Crit Moves:               | **** |      |      |      | **** |      |      |      |      | **** |      |      |
| Green Time:               | 9.3  | 40.4 | 0.0  | 0.0  | 31.0 | 31.0 | 0.0  | 0.0  | 0.0  | 50.6 | 50.6 | 50.6 |
| Volume/Cap:               | 0.85 | 0.41 | 0.00 | 0.00 | 0.85 | 0.85 | 0.00 | 0.00 | 0.00 | 0.54 | 0.85 | 0.59 |
| Uniform Del:              | 44.6 | 21.3 | 0.0  | 0.0  | 32.3 | 32.3 | 0.0  | 0.0  | 0.0  | 16.7 | 21.3 | 17.3 |
| IncrementDel:             | 19.7 | 0.2  | 0.0  | 0.0  | 4.0  | 4.0  | 0.0  | 0.0  | 0.0  | 0.2  | 4.0  | 0.4  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 64.3 | 21.5 | 0.0  | 0.0  | 36.3 | 36.3 | 0.0  | 0.0  | 0.0  | 16.9 | 25.3 | 17.7 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 64.3 | 21.5 | 0.0  | 0.0  | 36.3 | 36.3 | 0.0  | 0.0  | 0.0  | 16.9 | 25.3 | 17.7 |
| LOS by Move:              | E    | C+   | A    | A    | D+   | D+   | A    | A    | A    | B    | C    | B    |
| HCM2kAvgQ:                | 5    | 7    | 0    | 0    | 14   | 14   | 0    | 0    | 0    | 11   | 24   | 12   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

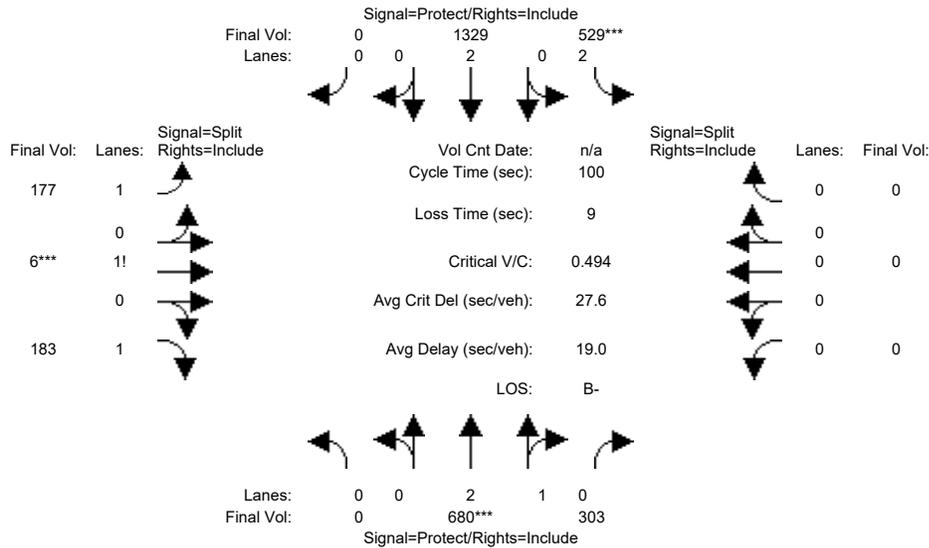


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 1061 | 634  | 444         | 764  | 0    | 215                    | 0    | 224  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 1061 | 634  | 444         | 764  | 0    | 215                    | 0    | 224  | 0          | 0    | 0    |
| Added Vol:                | 0               | 20   | 4    | 13          | 32   | 0    | 5                      | 0    | 2    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 1081 | 638  | 457         | 796  | 0    | 220                    | 0    | 226  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 1081 | 638  | 457         | 796  | 0    | 220                    | 0    | 226  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 1081 | 638  | 457         | 796  | 0    | 220                    | 0    | 226  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 1081 | 638  | 457         | 796  | 0    | 220                    | 0    | 226  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.92                   | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.00 | 1.00 | 2.00        | 2.00 | 0.00 | 1.49                   | 0.00 | 1.51 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 3800 | 1750 | 3150        | 3800 | 0    | 2613                   | 0    | 2637 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.28 | 0.36 | 0.15        | 0.21 | 0.00 | 0.08                   | 0.00 | 0.09 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               |                 |      | **** | ****        |      |      | ****                   |      |      |            |      |      |
| Green Time:               | 0.0             | 52.7 | 52.7 | 21.0        | 73.6 | 0.0  | 12.4                   | 0.0  | 12.4 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.51 | 0.66 | 0.66        | 0.27 | 0.00 | 0.65                   | 0.00 | 0.66 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 13.2 | 14.8 | 33.8        | 3.0  | 0.0  | 39.2                   | 0.0  | 39.3 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.1  | 0.6  | 2.3         | 0.0  | 0.0  | 2.1                    | 0.0  | 2.4  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 13.3 | 15.5 | 36.1        | 3.1  | 0.0  | 41.4                   | 0.0  | 41.7 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 13.3 | 15.5 | 36.1        | 3.1  | 0.0  | 41.4                   | 0.0  | 41.7 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | B    | B    | D+          | A    | A    | D                      | A    | D    | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 10   | 15   | 7           | 3    | 0    | 6                      | 0    | 6    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

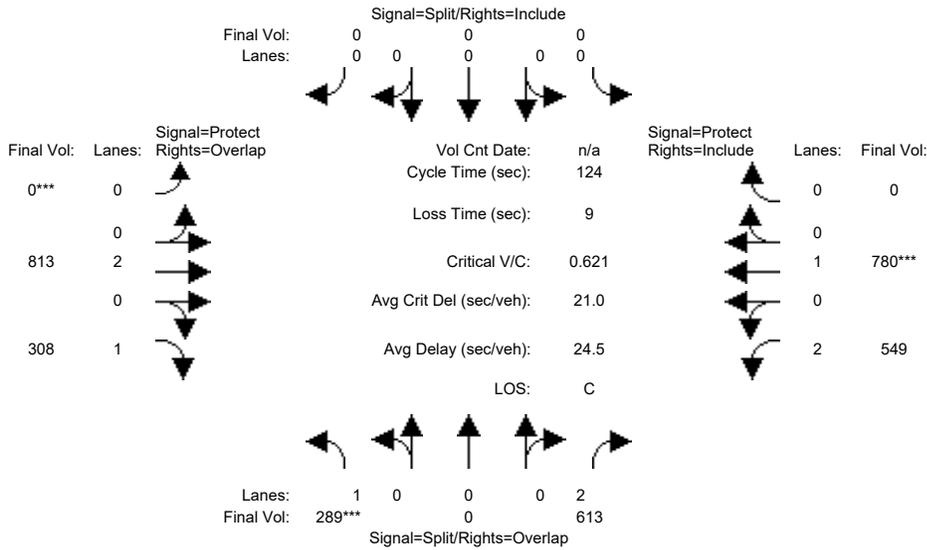


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 647  | 300  | 523         | 1302 | 0    | 158                    | 6    | 178  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 647  | 300  | 523         | 1302 | 0    | 158                    | 6    | 178  | 0          | 0    | 0    |
| Added Vol:                | 0               | 33   | 3    | 6           | 27   | 0    | 19                     | 0    | 5    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 680  | 303  | 529         | 1329 | 0    | 177                    | 6    | 183  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 680  | 303  | 529         | 1329 | 0    | 177                    | 6    | 183  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 680  | 303  | 529         | 1329 | 0    | 177                    | 6    | 183  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 680  | 303  | 529         | 1329 | 0    | 177                    | 6    | 183  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.95 | 0.83        | 1.00 | 0.92 | 0.92                   | 0.92 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.04 | 0.96 | 2.00        | 2.00 | 0.00 | 1.48                   | 0.03 | 1.49 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 3872 | 1725 | 3150        | 3800 | 0    | 2583                   | 56   | 2611 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.18 | 0.18 | 0.17        | 0.35 | 0.00 | 0.07                   | 0.11 | 0.07 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ****            |      |      | ****        |      |      | ****                   |      |      |            |      |      |
| Green Time:               | 0.0             | 35.5 | 35.5 | 34.0        | 69.5 | 0.0  | 21.5                   | 21.5 | 21.5 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.49 | 0.49 | 0.49        | 0.50 | 0.00 | 0.32                   | 0.49 | 0.33 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 25.2 | 25.2 | 26.2        | 7.2  | 0.0  | 33.1                   | 34.5 | 33.1 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.2  | 0.2  | 0.4         | 0.2  | 0.0  | 0.2                    | 0.5  | 0.2  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 25.4 | 25.4 | 26.6        | 7.3  | 0.0  | 33.2                   | 35.0 | 33.3 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 25.4 | 25.4 | 26.6        | 7.3  | 0.0  | 33.2                   | 35.0 | 33.3 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | C    | C    | C           | A    | A    | C-                     | C-   | C-   | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 8    | 8    | 7           | 9    | 0    | 4                      | 6    | 4    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #11: Fruitvale Ave & Saratoga Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Saratoga Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|-----------------|-----|-----|------------|-----|-----|
|              | North Bound      |     |     | South Bound |     |     | East Bound      |     |     | West Bound |     |     |
| Approach:    | L                | T   | R   | L           | T   | R   | L               | T   | R   | L          | T   | R   |
| Min. Green:  | 10               | 0   | 10  | 0           | 0   | 0   | 0               | 10  | 10  | 7          | 10  | 0   |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0             | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 286  | 0    | 585  | 0    | 0    | 0    | 0    | 811  | 307  | 534  | 774  | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 286  | 0    | 585  | 0    | 0    | 0    | 0    | 811  | 307  | 534  | 774  | 0    |
| Added Vol:     | 3    | 0    | 28   | 0    | 0    | 0    | 0    | 2    | 1    | 15   | 6    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 289  | 0    | 613  | 0    | 0    | 0    | 0    | 813  | 308  | 549  | 780  | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 289  | 0    | 613  | 0    | 0    | 0    | 0    | 813  | 308  | 549  | 780  | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 289  | 0    | 613  | 0    | 0    | 0    | 0    | 813  | 308  | 549  | 780  | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume:   | 289  | 0    | 613  | 0    | 0    | 0    | 0    | 813  | 308  | 549  | 780  | 0    |

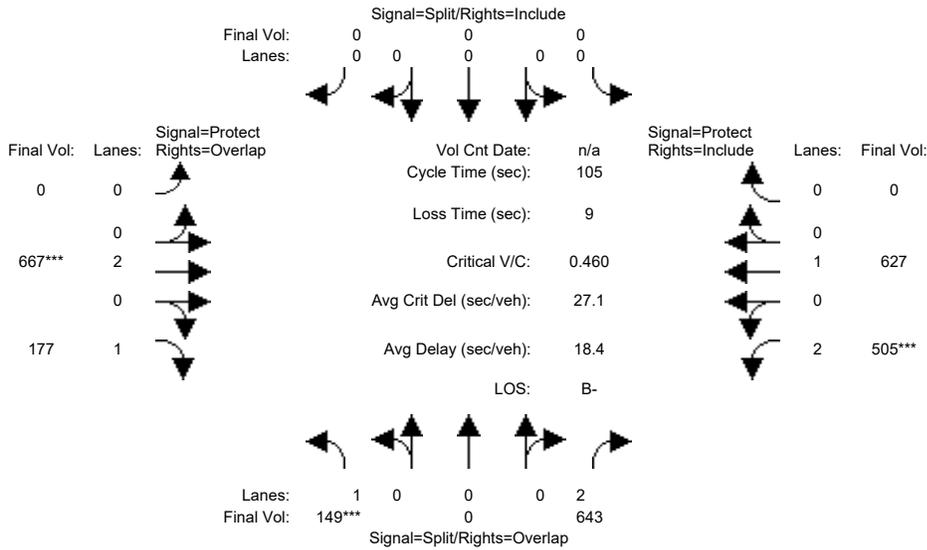
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.83 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 1.00 | 2.00 | 1.00 | 0.00 |
| Final Sat.:             | 1750 | 0    | 3150 | 0    | 0    | 0    | 0    | 3800 | 1750 | 3150 | 1900 | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.17 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.18 | 0.17 | 0.41 | 0.00 |
| Crit Moves:               | ***  |      |      |      |      |      | ***  |      |      | ***  |      |      |
| Green Time:               | 33.0 | 0.0  | 69.8 | 0.0  | 0.0  | 0.0  | 0.0  | 45.2 | 78.2 | 36.8 | 82.0 | 0.0  |
| Volume/Cap:               | 0.62 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 0.28 | 0.59 | 0.62 | 0.00 |
| Uniform Del:              | 40.0 | 0.0  | 14.7 | 0.0  | 0.0  | 0.0  | 0.0  | 31.9 | 10.3 | 37.1 | 12.1 | 0.0  |
| IncrementDel:             | 2.6  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.7  | 0.1  | 1.0  | 1.0  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Delay/Veh:                | 42.6 | 0.0  | 14.8 | 0.0  | 0.0  | 0.0  | 0.0  | 32.5 | 10.4 | 38.1 | 13.0 | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 42.6 | 0.0  | 14.8 | 0.0  | 0.0  | 0.0  | 0.0  | 32.5 | 10.4 | 38.1 | 13.0 | 0.0  |
| LOS by Move:              | D    | A    | B    | A    | A    | A    | A    | C-   | B+   | D+   | B    | A    |
| HCM2kAvgQ:                | 10   | 0    | 7    | 0    | 0    | 0    | 0    | 13   | 6    | 11   | 17   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #11: Fruitvale Ave & Saratoga Ave

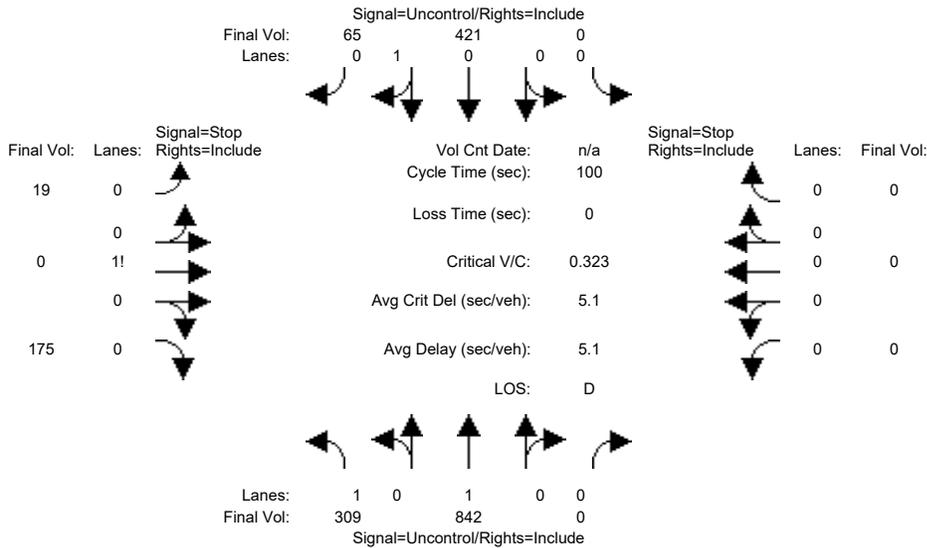


| Street Name:              | Fruitvale Avenue |      |      |             |      |      | Saratoga Avenue |      |      |            |      |      |
|---------------------------|------------------|------|------|-------------|------|------|-----------------|------|------|------------|------|------|
| Approach:                 | North Bound      |      |      | South Bound |      |      | East Bound      |      |      | West Bound |      |      |
| Movement:                 | L                | T    | R    | L           | T    | R    | L               | T    | R    | L          | T    | R    |
| Min. Green:               | 10               | 0    | 10   | 0           | 0    | 0    | 0               | 10   | 10   | 7          | 10   | 0    |
| Y+R:                      | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0             | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Base Vol:                 | 147              | 0    | 621  | 0           | 0    | 0    | 0               | 661  | 173  | 474        | 624  | 0    |
| Growth Adj:               | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 147              | 0    | 621  | 0           | 0    | 0    | 0               | 661  | 173  | 474        | 624  | 0    |
| Added Vol:                | 2                | 0    | 22   | 0           | 0    | 0    | 0               | 6    | 4    | 31         | 3    | 0    |
| PasserByVol:              | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 149              | 0    | 643  | 0           | 0    | 0    | 0               | 667  | 177  | 505        | 627  | 0    |
| User Adj:                 | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 149              | 0    | 643  | 0           | 0    | 0    | 0               | 667  | 177  | 505        | 627  | 0    |
| Reduct Vol:               | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 149              | 0    | 643  | 0           | 0    | 0    | 0               | 667  | 177  | 505        | 627  | 0    |
| PCE Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:              | 149              | 0    | 643  | 0           | 0    | 0    | 0               | 667  | 177  | 505        | 627  | 0    |
| Saturation Flow Module:   |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Sat/Lane:                 | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900            | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92             | 1.00 | 0.83 | 0.92        | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 |
| Lanes:                    | 1.00             | 0.00 | 2.00 | 0.00        | 0.00 | 0.00 | 0.00            | 2.00 | 1.00 | 2.00       | 1.00 | 0.00 |
| Final Sat.:               | 1750             | 0    | 3150 | 0           | 0    | 0    | 0               | 3800 | 1750 | 3150       | 1900 | 0    |
| Capacity Analysis Module: |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Vol/Sat:                  | 0.09             | 0.00 | 0.20 | 0.00        | 0.00 | 0.00 | 0.00            | 0.18 | 0.10 | 0.16       | 0.33 | 0.00 |
| Crit Moves:               | ***              |      |      |             |      |      | ***             |      |      | ***        |      |      |
| Green Time:               | 19.4             | 0.0  | 56.0 | 0.0         | 0.0  | 0.0  | 0.0             | 40.0 | 59.4 | 36.6       | 76.6 | 0.0  |
| Volume/Cap:               | 0.46             | 0.00 | 0.38 | 0.00        | 0.00 | 0.00 | 0.00            | 0.46 | 0.18 | 0.46       | 0.45 | 0.00 |
| Uniform Del:              | 38.1             | 0.0  | 14.4 | 0.0         | 0.0  | 0.0  | 0.0             | 24.4 | 11.0 | 26.6       | 5.7  | 0.0  |
| IncrementDel:             | 1.0              | 0.0  | 0.1  | 0.0         | 0.0  | 0.0  | 0.0             | 0.2  | 0.1  | 0.3        | 0.2  | 0.0  |
| InitQueueDel:             | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00             | 0.00 | 1.00 | 0.00        | 0.00 | 0.00 | 0.00            | 1.00 | 1.00 | 1.00       | 1.00 | 0.00 |
| Delay/Veh:                | 39.2             | 0.0  | 14.5 | 0.0         | 0.0  | 0.0  | 0.0             | 24.6 | 11.1 | 26.9       | 6.0  | 0.0  |
| User DelAdj:              | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 39.2             | 0.0  | 14.5 | 0.0         | 0.0  | 0.0  | 0.0             | 24.6 | 11.1 | 26.9       | 6.0  | 0.0  |
| LOS by Move:              | D                | A    | B    | A           | A    | A    | A               | C    | B+   | C          | A    | A    |
| HCM2kAvgQ:                | 5                | 0    | 7    | 0           | 0    | 0    | 0               | 8    | 3    | 8          | 8    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing + Project AM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 305  | 838  | 0    | 0    | 419  | 63   | 14   | 0    | 166  | 0    | 0    | 0    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 305  | 838  | 0    | 0    | 419  | 63   | 14   | 0    | 166  | 0    | 0    | 0    |
| Added Vol:   | 4    | 4    | 0    | 0    | 2    | 2    | 5    | 0    | 9    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 309  | 842  | 0    | 0    | 421  | 65   | 19   | 0    | 175  | 0    | 0    | 0    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 309  | 842  | 0    | 0    | 421  | 65   | 19   | 0    | 175  | 0    | 0    | 0    |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 309  | 842  | 0    | 0    | 421  | 65   | 19   | 0    | 175  | 0    | 0    | 0    |

Critical Gap Module:

|              |     |      |        |        |      |        |     |     |     |        |      |        |
|--------------|-----|------|--------|--------|------|--------|-----|-----|-----|--------|------|--------|
| Critical Gp: | 4.1 | xxxx | xxxxxx | xxxxxx | xxxx | xxxxxx | 6.4 | 6.5 | 6.2 | xxxxxx | xxxx | xxxxxx |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | xxxxxx | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | xxxxxx | xxxx | xxxxxx |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |        |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|--------|
| Cnflct Vol:  | 486  | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 1914 | 1914 | 454  | xxxx | xxxx | xxxxxx |
| Potent Cap.: | 1087 | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 75   | 69   | 611  | xxxx | xxxx | xxxxxx |
| Move Cap.:   | 1087 | xxxx | xxxxxx | xxxx | xxxx | xxxxxx | 59   | 49   | 611  | xxxx | xxxx | xxxxxx |
| Volume/Cap:  | 0.28 | xxxx | xxxx   | xxxx | xxxx | xxxx   | 0.32 | 0.00 | 0.29 | xxxx | xxxx | xxxx   |

Level Of Service Module:

|              |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:   | 1.2           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del: | 9.6           | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move: | A             | *             | *             | *             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:    | LT - LTR - RT |
| Shared Cap.: | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 318           | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| SharedQueue: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 3.8           | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shrd ConDel: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 32.4          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shared LOS:  | *             | *             | *             | *             | *             | *             | *             | D             | *             | *             | *             | *             |
| ApproachDel: | xxxxxxx       |               |               | xxxxxxx       |               |               |               | 32.4          |               | xxxxxxx       |               |               |
| ApproachLOS: | *             |               |               | *             |               |               |               | D             |               | *             |               |               |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 309 842 0    | 0 421 65     | 19 0 175   | 0 0 0 0    |
| ApproachDel: | xxxxxx       | xxxxxx       | 32.4       | xxxxxx     |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=1.7]  
FAIL - Vehicle-hours less than 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=194]  
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=3][total volume=1831]  
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
Intersection #12 Quito Rd & Cox Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 309 842 0    | 0 421 65     | 19 0 175   | 0 0 0 0    |

Major Street Volume: 1637  
Minor Approach Volume: 194  
Minor Approach Volume Threshold: 115

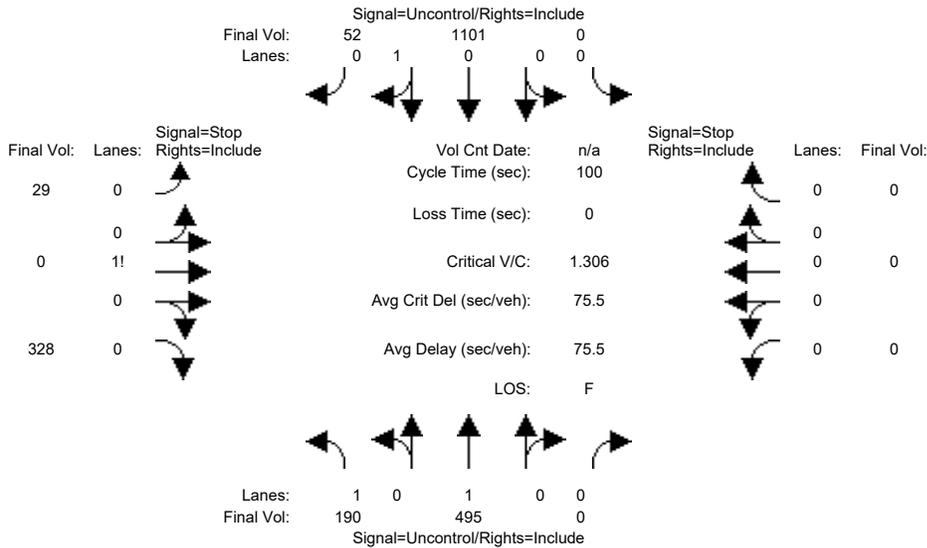
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing + Project PM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and rows for Volume Module (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume).

Table with 12 columns representing movements and rows for Critical Gap Module (Critical Gp, FollowUpTim).

Table with 12 columns representing movements and rows for Capacity Module (Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.).

Table with 12 columns representing movements and rows for Level Of Service Module (2Way95thQ, Control Del, LOS by Move, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS).

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 190 495 0    | 0 1101 52    | 29 0 328   | 0 0 0 0    |
| ApproachDel: | xxxxxx       | xxxxxx       | 456.8      | xxxxxx     |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=45.3]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=357]  
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=3][total volume=2195]  
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
Intersection #12 Quito Rd & Cox Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1 0 0  | 0 0 0 0 0  |
| Initial Vol: | 190 495 0    | 0 1101 52    | 29 0 328   | 0 0 0 0    |

Major Street Volume: 1838  
Minor Approach Volume: 357  
Minor Approach Volume Threshold: 75 [less than minimum of 100]

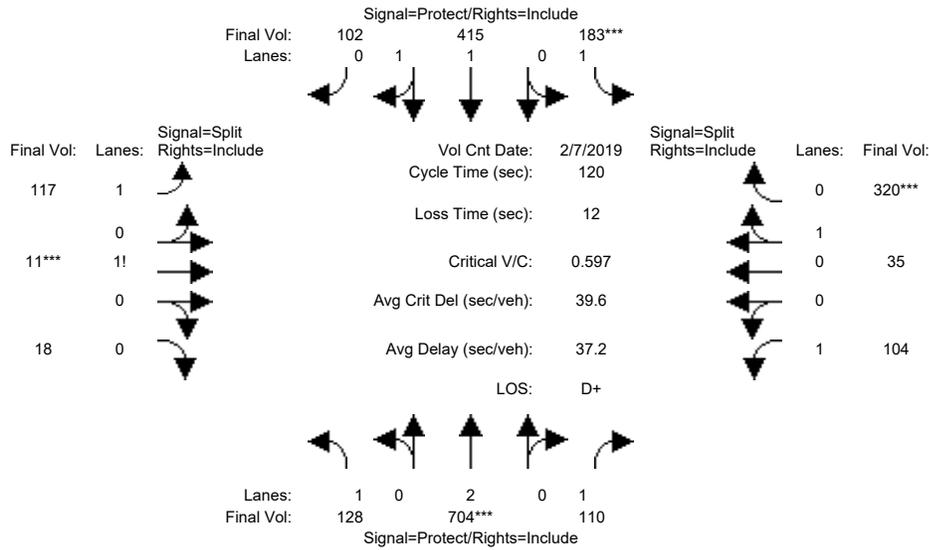
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #13: Fruitvale Ave & Allendale Ave

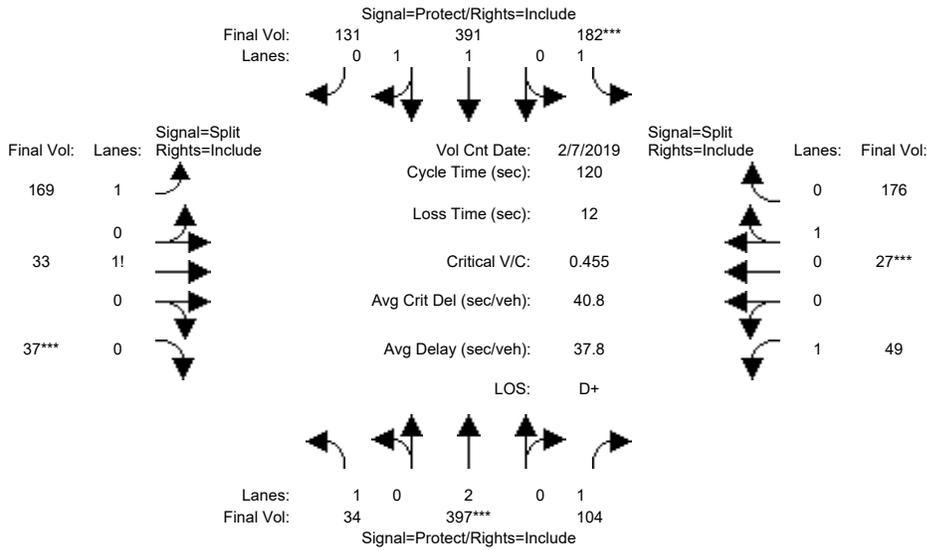


| Street Name:                                                  | Fruitvale Avenue |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|---------------------------------------------------------------|------------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                                                     | North Bound      |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                                                     | L                | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:                                                   | 7                | 10   | 10   | 7           | 10   | 10   | 10               | 10   | 10   | 10         | 10   | 10   |
| Y+R:                                                          | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: 7 Feb 2019 << 7:30 AM - 8:30 AM |                  |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                                                     | 128              | 677  | 110  | 182         | 400  | 102  | 117              | 11   | 18   | 104        | 35   | 316  |
| Growth Adj:                                                   | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                  | 128              | 677  | 110  | 182         | 400  | 102  | 117              | 11   | 18   | 104        | 35   | 316  |
| Added Vol:                                                    | 0                | 27   | 0    | 1           | 15   | 0    | 0                | 0    | 0    | 0          | 0    | 4    |
| PasserByVol:                                                  | 0                | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                  | 128              | 704  | 110  | 183         | 415  | 102  | 117              | 11   | 18   | 104        | 35   | 320  |
| User Adj:                                                     | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                      | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                   | 128              | 704  | 110  | 183         | 415  | 102  | 117              | 11   | 18   | 104        | 35   | 320  |
| Reduct Vol:                                                   | 0                | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                  | 128              | 704  | 110  | 183         | 415  | 102  | 117              | 11   | 18   | 104        | 35   | 320  |
| PCE Adj:                                                      | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                      | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                                 | 128              | 704  | 110  | 183         | 415  | 102  | 117              | 11   | 18   | 104        | 35   | 320  |
| Saturation Flow Module:                                       |                  |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                                                     | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                   | 0.92             | 1.00 | 0.92 | 0.92        | 0.98 | 0.95 | 0.92             | 0.92 | 0.92 | 0.92       | 0.95 | 0.95 |
| Lanes:                                                        | 1.00             | 2.00 | 1.00 | 1.00        | 1.59 | 0.41 | 1.67             | 0.13 | 0.20 | 1.00       | 0.10 | 0.90 |
| Final Sat.:                                                   | 1750             | 3800 | 1750 | 1750        | 2969 | 730  | 2920             | 220  | 360  | 1750       | 177  | 1623 |
| Capacity Analysis Module:                                     |                  |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                                                      | 0.07             | 0.19 | 0.06 | 0.10        | 0.14 | 0.14 | 0.04             | 0.05 | 0.05 | 0.06       | 0.20 | 0.20 |
| Crit Moves:                                                   | ****             |      |      | ****        |      |      | ****             |      |      | ****       |      |      |
| Green Time:                                                   | 20.0             | 37.3 | 37.3 | 21.0        | 38.3 | 38.3 | 10.1             | 10.1 | 10.1 | 39.7       | 39.7 | 39.7 |
| Volume/Cap:                                                   | 0.44             | 0.60 | 0.20 | 0.60        | 0.44 | 0.44 | 0.48             | 0.60 | 0.60 | 0.18       | 0.60 | 0.60 |
| Uniform Del:                                                  | 44.9             | 35.0 | 30.4 | 45.6        | 32.4 | 32.4 | 52.5             | 53.0 | 53.0 | 28.6       | 33.5 | 33.5 |
| IncrementDel:                                                 | 1.1              | 0.8  | 0.2  | 3.2         | 0.3  | 0.3  | 1.2              | 4.0  | 4.0  | 0.2        | 1.7  | 1.7  |
| InitQueueDel:                                                 | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                    | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                    | 46.0             | 35.9 | 30.6 | 48.8        | 32.6 | 32.6 | 53.7             | 57.0 | 57.0 | 28.7       | 35.2 | 35.2 |
| User DelAdj:                                                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                   | 46.0             | 35.9 | 30.6 | 48.8        | 32.6 | 32.6 | 53.7             | 57.0 | 57.0 | 28.7       | 35.2 | 35.2 |
| LOS by Move:                                                  | D                | D+   | C    | D           | C-   | C-   | D-               | E+   | E+   | C          | D+   | D+   |
| HCM2kAvgQ:                                                    | 5                | 11   | 3    | 7           | 7    | 7    | 3                | 4    | 4    | 3          | 11   | 11   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
|              | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Approach:    | L - T - R        |     |     | L - T - R   |     |     | L - T - R        |     |     | L - T - R  |     |     |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >> Count | Date: | 7 Feb 2019 | << 4:00 PM | 5:00 PM |      |      |      |      |      |      |      |
|----------------|----------|-------|------------|------------|---------|------|------|------|------|------|------|------|
| Base Vol:      | 34       | 375   | 104        | 178        | 360     | 131  | 169  | 33   | 37   | 49   | 27   | 173  |
| Growth Adj:    | 1.00     | 1.00  | 1.00       | 1.00       | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 34       | 375   | 104        | 178        | 360     | 131  | 169  | 33   | 37   | 49   | 27   | 173  |
| Added Vol:     | 0        | 22    | 0          | 4          | 31      | 0    | 0    | 0    | 0    | 0    | 0    | 3    |
| PasserByVol:   | 0        | 0     | 0          | 0          | 0       | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 34       | 397   | 104        | 182        | 391     | 131  | 169  | 33   | 37   | 49   | 27   | 176  |
| User Adj:      | 1.00     | 1.00  | 1.00       | 1.00       | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00     | 1.00  | 1.00       | 1.00       | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 34       | 397   | 104        | 182        | 391     | 131  | 169  | 33   | 37   | 49   | 27   | 176  |
| Reduct Vol:    | 0        | 0     | 0          | 0          | 0       | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 34       | 397   | 104        | 182        | 391     | 131  | 169  | 33   | 37   | 49   | 27   | 176  |
| PCE Adj:       | 1.00     | 1.00  | 1.00       | 1.00       | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00     | 1.00  | 1.00       | 1.00       | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 34       | 397   | 104        | 182        | 391     | 131  | 169  | 33   | 37   | 49   | 27   | 176  |

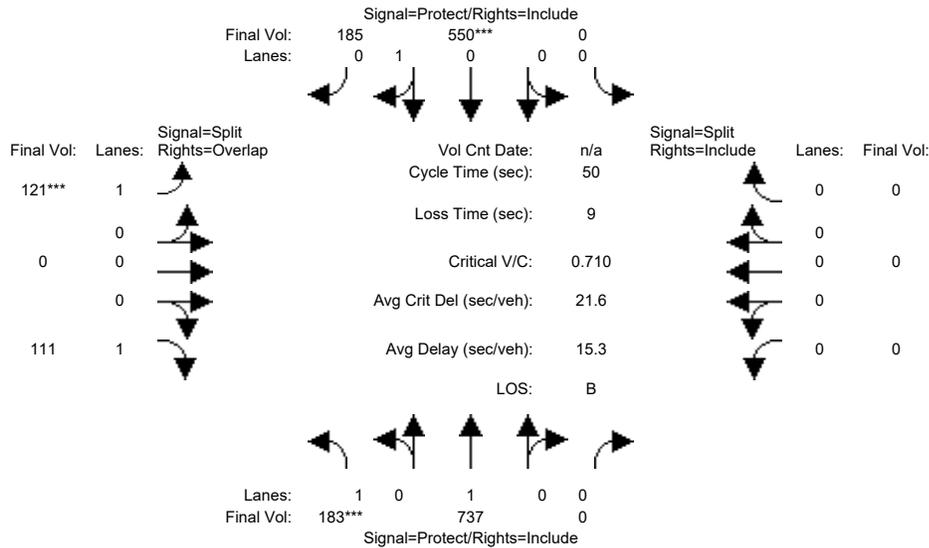
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.48 | 0.52 | 1.55 | 0.21 | 0.24 | 1.00 | 0.13 | 0.87 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2771 | 928  | 2707 | 374  | 419  | 1750 | 239  | 1561 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.02 | 0.10 | 0.06 | 0.10 | 0.14 | 0.14 | 0.06 | 0.09 | 0.09 | 0.03 | 0.11 | 0.11 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 16.1 | 27.6 | 27.6 | 27.4 | 38.9 | 38.9 | 23.3 | 23.3 | 23.3 | 29.7 | 29.7 | 29.7 |
| Volume/Cap:               | 0.14 | 0.46 | 0.26 | 0.46 | 0.44 | 0.44 | 0.32 | 0.46 | 0.46 | 0.11 | 0.46 | 0.46 |
| Uniform Del:              | 45.9 | 39.8 | 37.9 | 39.9 | 31.9 | 31.9 | 41.6 | 42.8 | 42.8 | 34.9 | 38.3 | 38.3 |
| IncrementDel:             | 0.3  | 0.4  | 0.3  | 0.8  | 0.3  | 0.3  | 0.3  | 0.6  | 0.6  | 0.1  | 0.7  | 0.7  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 46.2 | 40.1 | 38.2 | 40.7 | 32.2 | 32.2 | 41.8 | 43.4 | 43.4 | 35.0 | 39.0 | 39.0 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 46.2 | 40.1 | 38.2 | 40.7 | 32.2 | 32.2 | 41.8 | 43.4 | 43.4 | 35.0 | 39.0 | 39.0 |
| LOS by Move:              | D    | D    | D+   | D    | C-   | C-   | D    | D    | D    | D+   | D+   | D+   |
| HCM2kAvgQ:                | 1    | 7    | 3    | 6    | 8    | 8    | 4    | 6    | 6    | 1    | 6    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #14: Quito Rd & Allendale Ave



| Street Name: | Quito Road  |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|-------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
|              | North Bound |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Approach:    |             |     |     |             |     |     |                  |     |     |            |     |     |
| Movement:    | L           | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7           | 10  | 0   | 0           | 10  | 10  | 10               | 0   | 10  | 0          | 0   | 0   |
| Y+R:         | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 179  | 729  | 0    | 0    | 539  | 185  | 121  | 0    | 110  | 0    | 0    | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 179  | 729  | 0    | 0    | 539  | 185  | 121  | 0    | 110  | 0    | 0    | 0    |
| Added Vol:     | 4    | 8    | 0    | 0    | 11   | 0    | 0    | 0    | 1    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 183  | 737  | 0    | 0    | 550  | 185  | 121  | 0    | 111  | 0    | 0    | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 183  | 737  | 0    | 0    | 550  | 185  | 121  | 0    | 111  | 0    | 0    | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 183  | 737  | 0    | 0    | 550  | 185  | 121  | 0    | 111  | 0    | 0    | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 183  | 737  | 0    | 0    | 550  | 185  | 121  | 0    | 111  | 0    | 0    | 0    |

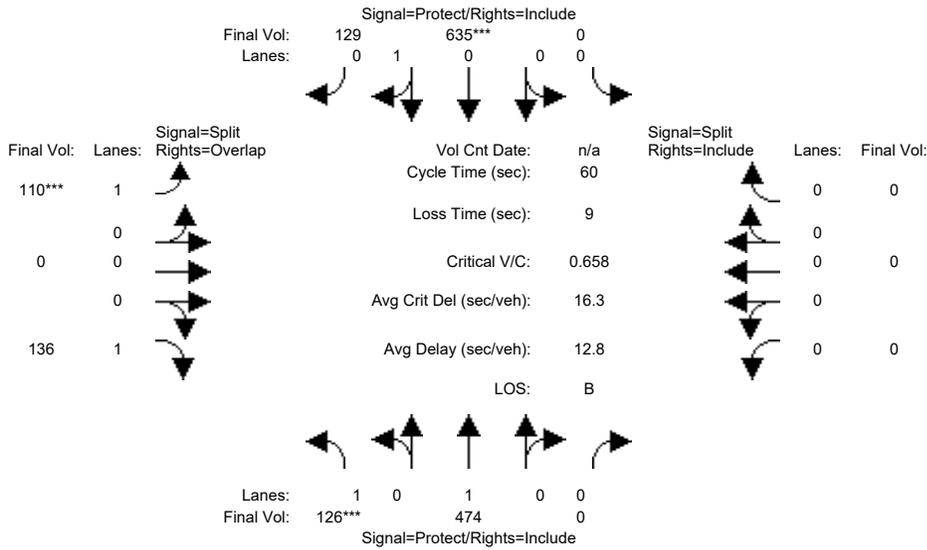
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 1.00 | 0.00 | 0.00 | 0.75 | 0.25 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Final Sat.:             | 1750 | 1900 | 0    | 0    | 1347 | 453  | 1750 | 0    | 1750 | 0    | 0    | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.10 | 0.39 | 0.00 | 0.00 | 0.41 | 0.41 | 0.07 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 |
| Crit Moves:               | ***  |      |      | **** |      |      | **** |      |      |      |      |      |
| Green Time:               | 7.0  | 31.0 | 0.0  | 0.0  | 24.0 | 24.0 | 10.0 | 0.0  | 17.0 | 0.0  | 0.0  | 0.0  |
| Volume/Cap:               | 0.75 | 0.63 | 0.00 | 0.00 | 0.85 | 0.85 | 0.35 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| Uniform Del:              | 20.6 | 5.9  | 0.0  | 0.0  | 11.4 | 11.4 | 17.2 | 0.0  | 11.6 | 0.0  | 0.0  | 0.0  |
| IncrementDel:             | 11.9 | 1.1  | 0.0  | 0.0  | 8.1  | 8.1  | 0.6  | 0.0  | 0.2  | 0.0  | 0.0  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Delay/Veh:                | 32.5 | 7.0  | 0.0  | 0.0  | 19.5 | 19.5 | 17.8 | 0.0  | 11.8 | 0.0  | 0.0  | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 32.5 | 7.0  | 0.0  | 0.0  | 19.5 | 19.5 | 17.8 | 0.0  | 11.8 | 0.0  | 0.0  | 0.0  |
| LOS by Move:              | C-   | A    | A    | A    | B-   | B-   | B    | A    | B+   | A    | A    | A    |
| HCM2kAvgQ:                | 5    | 8    | 0    | 0    | 12   | 12   | 2    | 0    | 1    | 0    | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #14: Quito Rd & Allendale Ave



| Street Name: | Quito Road  |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|-------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Movement:    | L           | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7           | 10  | 0   | 0           | 10  | 10  | 10               | 0   | 10  | 0          | 0   | 0   |
| Y+R:         | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 123         | 463  | 0    | 0           | 623  | 129  | 110        | 0    | 132  | 0          | 0    | 0    |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 123         | 463  | 0    | 0           | 623  | 129  | 110        | 0    | 132  | 0          | 0    | 0    |
| Added Vol:     | 3           | 11   | 0    | 0           | 12   | 0    | 0          | 0    | 4    | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 126         | 474  | 0    | 0           | 635  | 129  | 110        | 0    | 136  | 0          | 0    | 0    |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:    | 126         | 474  | 0    | 0           | 635  | 129  | 110        | 0    | 136  | 0          | 0    | 0    |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 126         | 474  | 0    | 0           | 635  | 129  | 110        | 0    | 136  | 0          | 0    | 0    |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:  | 126         | 474  | 0    | 0           | 635  | 129  | 110        | 0    | 136  | 0          | 0    | 0    |

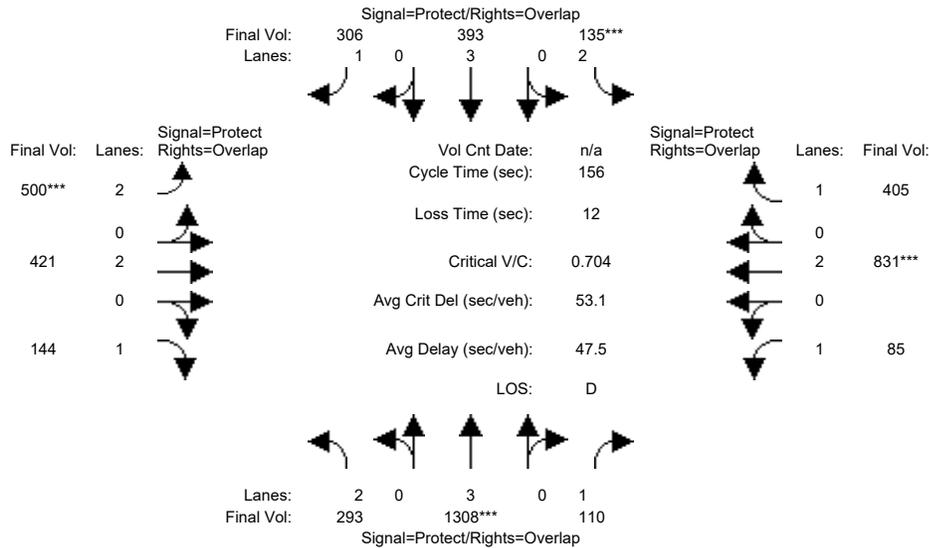
| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:             | 0.92        | 1.00 | 0.92 | 0.92        | 0.95 | 0.95 | 0.92       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                  | 1.00        | 1.00 | 0.00 | 0.00        | 0.83 | 0.17 | 1.00       | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Final Sat.:             | 1750        | 1900 | 0    | 0           | 1496 | 304  | 1750       | 0    | 1750 | 0          | 0    | 0    |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.07        | 0.25 | 0.00 | 0.00        | 0.42 | 0.42 | 0.06       | 0.00 | 0.08 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ****        |      |      | ****        |      |      | ****       |      |      |            |      |      |
| Green Time:               | 7.0         | 41.0 | 0.0  | 0.0         | 34.0 | 34.0 | 10.0       | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.62        | 0.37 | 0.00 | 0.00        | 0.75 | 0.75 | 0.38       | 0.00 | 0.27 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 25.2        | 4.0  | 0.0  | 0.0         | 9.8  | 9.8  | 22.2       | 0.0  | 16.7 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 5.6         | 0.2  | 0.0  | 0.0         | 3.1  | 3.1  | 0.8        | 0.0  | 0.3  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 1.00       | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 30.8        | 4.2  | 0.0  | 0.0         | 12.9 | 12.9 | 23.1       | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 30.8        | 4.2  | 0.0  | 0.0         | 12.9 | 12.9 | 23.1       | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | C           | A    | A    | A           | B    | B    | C          | A    | B    | A          | A    | A    |
| HCM2kAvgQ:                | 4           | 4    | 0    | 0           | 11   | 11   | 2          | 0    | 2    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 18          | 47  | 47  | 15          | 44  | 44  | 27         | 55  | 55  | 16         | 44  | 44  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 292  | 1291 | 110  | 135  | 388  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 292  | 1291 | 110  | 135  | 388  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |
| Added Vol:   | 1    | 17   | 0    | 0    | 5    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 293  | 1308 | 110  | 135  | 393  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 293  | 1308 | 110  | 135  | 393  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 293  | 1308 | 110  | 135  | 393  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 293  | 1308 | 110  | 135  | 393  | 306  | 500  | 421  | 144  | 85   | 831  | 405  |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:      | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 3150 | 5700 | 1750 | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 3800 | 1750 |

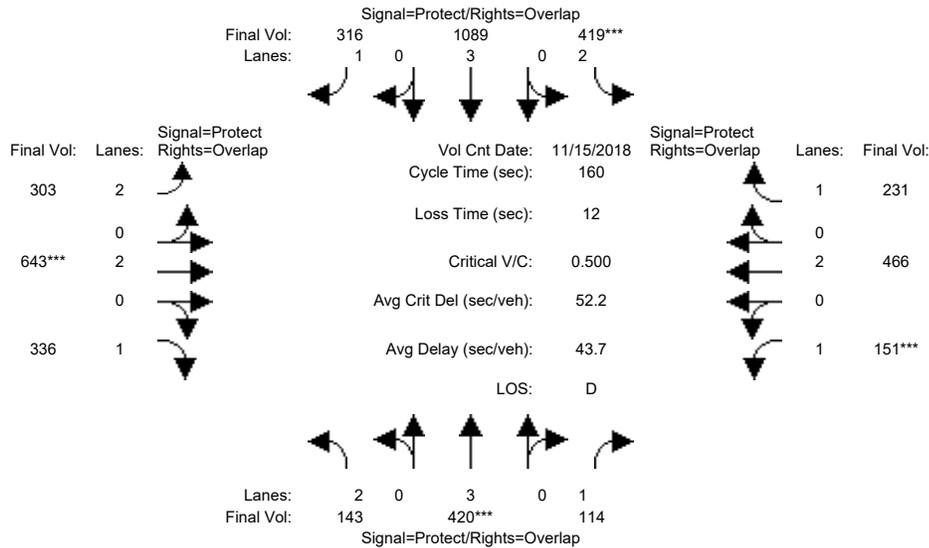
Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.09 | 0.23 | 0.06 | 0.04 | 0.07 | 0.17 | 0.16 | 0.11 | 0.08 | 0.05 | 0.22 | 0.23 |
| Crit Moves:   | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |
| Green Time:   | 18.5 | 48.8 | 66.9 | 15.0 | 45.3 | 79.0 | 33.7 | 62.1 | 80.7 | 18.1 | 46.5 | 61.5 |
| Volume/Cap:   | 0.78 | 0.73 | 0.15 | 0.45 | 0.24 | 0.35 | 0.73 | 0.28 | 0.16 | 0.42 | 0.73 | 0.59 |
| Uniform Del:  | 66.8 | 47.8 | 27.2 | 66.6 | 42.2 | 23.0 | 56.9 | 31.8 | 19.8 | 64.1 | 49.2 | 37.3 |
| IncrementDel: | 10.4 | 1.6  | 0.1  | 1.0  | 0.1  | 0.2  | 4.1  | 0.1  | 0.1  | 1.4  | 2.5  | 1.3  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 77.2 | 49.4 | 27.3 | 67.6 | 42.3 | 23.3 | 61.1 | 31.9 | 19.9 | 65.5 | 51.7 | 38.6 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 77.2 | 49.4 | 27.3 | 67.6 | 42.3 | 23.3 | 61.1 | 31.9 | 19.9 | 65.5 | 51.7 | 38.6 |
| LOS by Move:  | E-   | D    | C    | E    | D    | C    | E    | C    | B-   | E    | D-   | D+   |
| HCM2kAvgQ:    | 9    | 18   | 3    | 4    | 5    | 9    | 13   | 6    | 4    | 4    | 19   | 16   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD

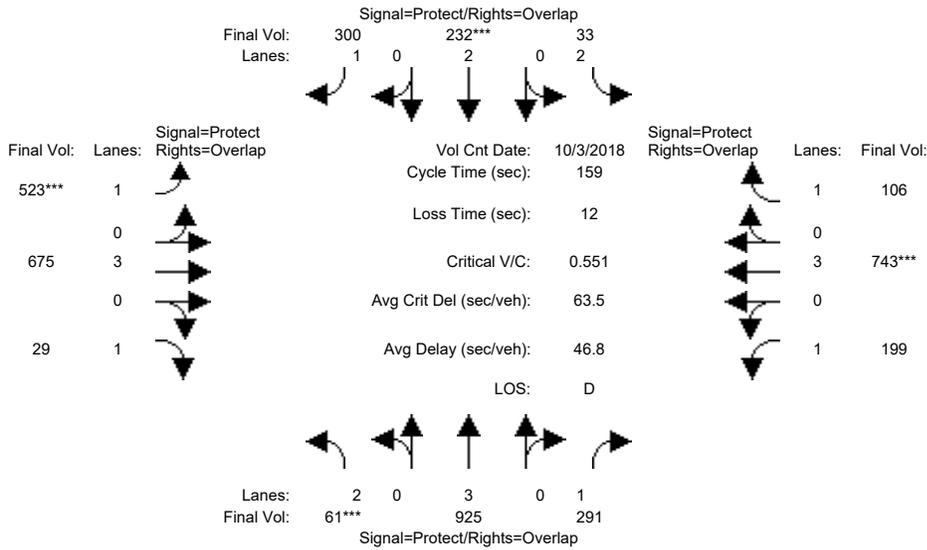


| Approach:                                                   | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
|                                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                                 | 18          | 41   | 41   | 30          | 53   | 53   | 29         | 46   | 46   | 20         | 37   | 37   |
| Y+R:                                                        | 6.3         | 6.2  | 6.2  | 6.3         | 6.2  | 6.2  | 5.3        | 5.8  | 5.8  | 5.3        | 6.0  | 6.0  |
| Volume Module: >> Count Date: 15 Nov 2018 << 4:30 - 5:30 PM |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                                   | 143         | 411  | 114  | 419         | 1073 | 316  | 303        | 643  | 335  | 151        | 466  | 231  |
| Growth Adj:                                                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                | 143         | 411  | 114  | 419         | 1073 | 316  | 303        | 643  | 335  | 151        | 466  | 231  |
| Added Vol:                                                  | 0           | 9    | 0    | 0           | 16   | 0    | 0          | 0    | 1    | 0          | 0    | 0    |
| PasserByVol:                                                | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                | 143         | 420  | 114  | 419         | 1089 | 316  | 303        | 643  | 336  | 151        | 466  | 231  |
| User Adj:                                                   | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                 | 143         | 420  | 114  | 419         | 1089 | 316  | 303        | 643  | 336  | 151        | 466  | 231  |
| Reduct Vol:                                                 | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                | 143         | 420  | 114  | 419         | 1089 | 316  | 303        | 643  | 336  | 151        | 466  | 231  |
| PCE Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                               | 143         | 420  | 114  | 419         | 1089 | 316  | 303        | 643  | 336  | 151        | 466  | 231  |
| Saturation Flow Module:                                     |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                                   | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                 | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                      | 2.00        | 3.00 | 1.00 | 2.00        | 3.00 | 1.00 | 2.00       | 2.00 | 1.00 | 1.00       | 2.00 | 1.00 |
| Final Sat.:                                                 | 3150        | 5700 | 1750 | 3150        | 5700 | 1750 | 3150       | 3800 | 1750 | 1750       | 3800 | 1750 |
| Capacity Analysis Module:                                   |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                                    | 0.05        | 0.07 | 0.07 | 0.13        | 0.19 | 0.18 | 0.10       | 0.17 | 0.19 | 0.09       | 0.12 | 0.13 |
| Crit Moves:                                                 | ****        |      |      | ****        |      |      | ****       |      |      | ****       |      |      |
| Green Time:                                                 | 19.7        | 41.0 | 64.8 | 36.6        | 58.0 | 88.9 | 30.9       | 46.6 | 66.3 | 23.8       | 39.4 | 76.1 |
| Volume/Cap:                                                 | 0.37        | 0.29 | 0.16 | 0.58        | 0.53 | 0.33 | 0.50       | 0.58 | 0.46 | 0.58       | 0.50 | 0.28 |
| Uniform Del:                                                | 64.5        | 47.8 | 30.3 | 54.9        | 40.2 | 19.3 | 57.6       | 48.4 | 34.0 | 63.5       | 51.8 | 25.4 |
| IncrcmntDel:                                                | 0.6         | 0.1  | 0.1  | 1.2         | 0.3  | 0.2  | 0.6        | 0.8  | 0.5  | 3.3        | 0.4  | 0.2  |
| InitQueuDel:                                                | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                  | 1.00        | 1.00 | 0.89 | 1.00        | 0.93 | 0.67 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                  | 65.1        | 47.9 | 27.1 | 56.1        | 37.8 | 13.1 | 58.3       | 49.2 | 34.4 | 66.8       | 52.2 | 25.5 |
| User DelAdj:                                                | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                 | 65.1        | 47.9 | 27.1 | 56.1        | 37.8 | 13.1 | 58.3       | 49.2 | 34.4 | 66.8       | 52.2 | 25.5 |
| LOS by Move:                                                | E           | D    | C    | E+          | D+   | B    | E+         | D    | C-   | E          | D-   | C    |
| HCM2kAvgQ:                                                  | 4           | 5    | 3    | 11          | 12   | 6    | 8          | 13   | 12   | 8          | 10   | 7    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project AM

Intersection #5640: LAWRENCE EXPWY/SARATOGA

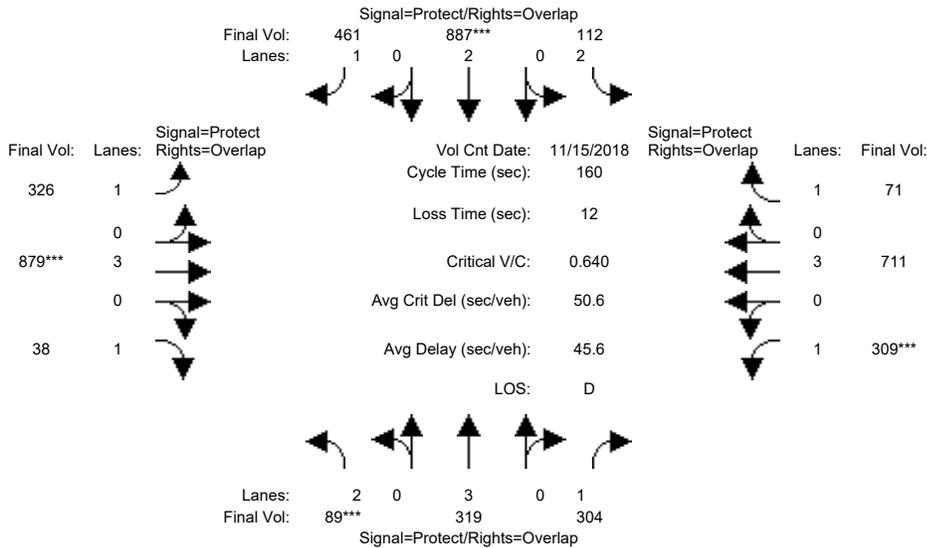


| Approach:                                             | North Bound |      |      | South Bound |      |       | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------|-------------|------|------|-------------|------|-------|------------|------|------|------------|------|------|
|                                                       | L           | T    | R    | L           | T    | R     | L          | T    | R    | L          | T    | R    |
| Min. Green:                                           | 10          | 58   | 58   | 3           | 52   | 52    | 38         | 55   | 55   | 19         | 36   | 36   |
| Y+R:                                                  | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0   | 4.0        | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: 3 Oct 2018 << 7:45-8:45 |             |      |      |             |      |       |            |      |      |            |      |      |
| Base Vol:                                             | 61          | 922  | 285  | 33          | 231  | 296   | 509        | 647  | 29   | 197        | 735  | 106  |
| Growth Adj:                                           | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                          | 61          | 922  | 285  | 33          | 231  | 296   | 509        | 647  | 29   | 197        | 735  | 106  |
| Added Vol:                                            | 0           | 3    | 6    | 0           | 1    | 4     | 14         | 28   | 0    | 2          | 8    | 0    |
| PasserByVol:                                          | 0           | 0    | 0    | 0           | 0    | 0     | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                          | 61          | 925  | 291  | 33          | 232  | 300   | 523        | 675  | 29   | 199        | 743  | 106  |
| User Adj:                                             | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                           | 61          | 925  | 291  | 33          | 232  | 300   | 523        | 675  | 29   | 199        | 743  | 106  |
| Reduct Vol:                                           | 0           | 0    | 0    | 0           | 0    | 0     | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                          | 61          | 925  | 291  | 33          | 232  | 300   | 523        | 675  | 29   | 199        | 743  | 106  |
| PCE Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                         | 61          | 925  | 291  | 33          | 232  | 300   | 523        | 675  | 29   | 199        | 743  | 106  |
| Saturation Flow Module:                               |             |      |      |             |      |       |            |      |      |            |      |      |
| Sat/Lane:                                             | 1900        | 1900 | 1900 | 1900        | 1900 | 1900  | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                           | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92  | 0.92       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00  | 1.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                           | 3150        | 5700 | 1750 | 3150        | 3800 | 1750  | 1750       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                             |             |      |      |             |      |       |            |      |      |            |      |      |
| Vol/Sat:                                              | 0.02        | 0.16 | 0.17 | 0.01        | 0.06 | 0.17  | 0.30       | 0.12 | 0.02 | 0.11       | 0.13 | 0.06 |
| Crit Moves:                                           | ****        |      |      | ****        |      |       | ****       |      |      | ****       |      |      |
| Green Time:                                           | 10.0        | 59.0 | 80.8 | 3.0         | 52.0 | 101.0 | 49.0       | 63.2 | 73.2 | 21.8       | 36.0 | 39.0 |
| Volume/Cap:                                           | 0.31        | 0.44 | 0.33 | 0.55        | 0.19 | 0.27  | 0.97       | 0.30 | 0.04 | 0.83       | 0.58 | 0.25 |
| Uniform Del:                                          | 71.2        | 37.6 | 23.1 | 77.3        | 38.3 | 12.8  | 54.3       | 32.8 | 23.6 | 66.8       | 54.7 | 48.2 |
| IncrementDel:                                         | 0.9         | 0.1  | 0.2  | 10.1        | 0.1  | 0.1   | 31.0       | 0.1  | 0.0  | 20.7       | 0.6  | 0.3  |
| InitQueueDel:                                         | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0   | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                            | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                            | 72.1        | 37.7 | 23.3 | 87.3        | 38.4 | 12.9  | 85.3       | 32.8 | 23.6 | 87.5       | 55.3 | 48.5 |
| User DelAdj:                                          | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                           | 72.1        | 37.7 | 23.3 | 87.3        | 38.4 | 12.9  | 85.3       | 32.8 | 23.6 | 87.5       | 55.3 | 48.5 |
| LOS by Move:                                          | E           | D+   | C    | F           | D+   | B     | F          | C-   | C    | F          | E+   | D    |
| HCM2kAvgQ:                                            | 2           | 11   | 9    | 1           | 4    | 7     | 31         | 7    | 1    | 12         | 11   | 4    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Existing + Project PM

Intersection #5640: LAWRENCE EXPWY/SARATOGA



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 12          | 54  | 54  | 15          | 58  | 58  | 31         | 40  | 40  | 27         | 36  | 36  |
| Y+R:        | 5.4         | 6.2 | 6.2 | 5.6         | 6.2 | 6.2 | 6.0        | 6.0 | 6.0 | 6.0        | 5.8 | 5.8 |

| Volume Module: | >>   | Count | Date: | 15 Nov 2018 | <<   | 5:00 - 6:00 PM |      |      |      |      |      |      |
|----------------|------|-------|-------|-------------|------|----------------|------|------|------|------|------|------|
| Base Vol:      | 89   | 317   | 300   | 112         | 883  | 448            | 319  | 864  | 38   | 303  | 685  | 71   |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 89   | 317   | 300   | 112         | 883  | 448            | 319  | 864  | 38   | 303  | 685  | 71   |
| Added Vol:     | 0    | 2     | 4     | 0           | 4    | 13             | 7    | 15   | 0    | 6    | 26   | 0    |
| PasserByVol:   | 0    | 0     | 0     | 0           | 0    | 0              | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 89   | 319   | 304   | 112         | 887  | 461            | 326  | 879  | 38   | 309  | 711  | 71   |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 89   | 319   | 304   | 112         | 887  | 461            | 326  | 879  | 38   | 309  | 711  | 71   |
| Reduct Vol:    | 0    | 0     | 0     | 0           | 0    | 0              | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 89   | 319   | 304   | 112         | 887  | 461            | 326  | 879  | 38   | 309  | 711  | 71   |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00        | 1.00 | 1.00           | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 89   | 319   | 304   | 112         | 887  | 461            | 326  | 879  | 38   | 309  | 711  | 71   |

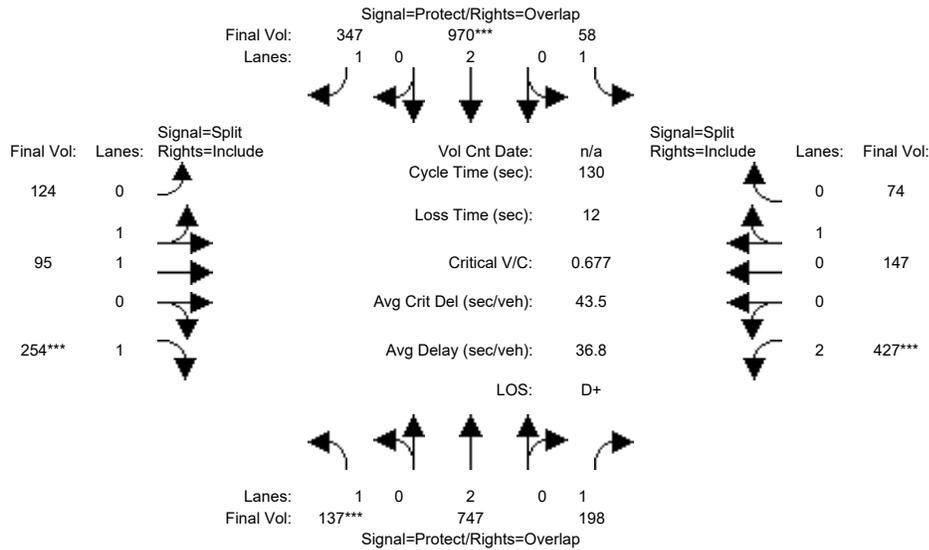
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 3.00 | 1.00 | 1.00 | 3.00 | 1.00 |
| Final Sat.:             | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 5700 | 1750 | 1750 | 5700 | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.03 | 0.06 | 0.17 | 0.04 | 0.23 | 0.26 | 0.19 | 0.15 | 0.02 | 0.18 | 0.12 | 0.04 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 12.0 | 54.8 | 92.8 | 15.2 | 58.0 | 94.1 | 36.1 | 40.0 | 52.0 | 38.0 | 41.9 | 57.1 |
| Volume/Cap:               | 0.38 | 0.16 | 0.30 | 0.37 | 0.64 | 0.45 | 0.83 | 0.62 | 0.07 | 0.74 | 0.48 | 0.11 |
| Uniform Del:              | 70.4 | 36.6 | 17.1 | 67.9 | 42.4 | 18.4 | 59.0 | 53.2 | 37.3 | 56.5 | 49.8 | 34.5 |
| IncrcmntDel:              | 1.0  | 0.0  | 0.2  | 0.8  | 1.1  | 0.3  | 13.3 | 0.8  | 0.0  | 7.1  | 0.2  | 0.1  |
| InitQueuDel:              | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.09 | 1.36 | 1.00 | 0.93 | 0.60 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 71.4 | 40.0 | 23.4 | 68.7 | 40.6 | 11.4 | 72.3 | 54.0 | 37.3 | 63.6 | 50.0 | 34.6 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 71.4 | 40.0 | 23.4 | 68.7 | 40.6 | 11.4 | 72.3 | 54.0 | 37.3 | 63.6 | 50.0 | 34.6 |
| LOS by Move:              | E    | D    | C    | E    | D    | B+   | E    | D-   | D+   | E    | D    | C-   |
| HCM2kAvgQ:                | 2    | 4    | 11   | 3    | 16   | 8    | 17   | 12   | 1    | 16   | 10   | 2    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 137  | 747  | 198  | 58   | 970  | 347  | 124  | 95   | 254  | 427  | 147  | 74   |

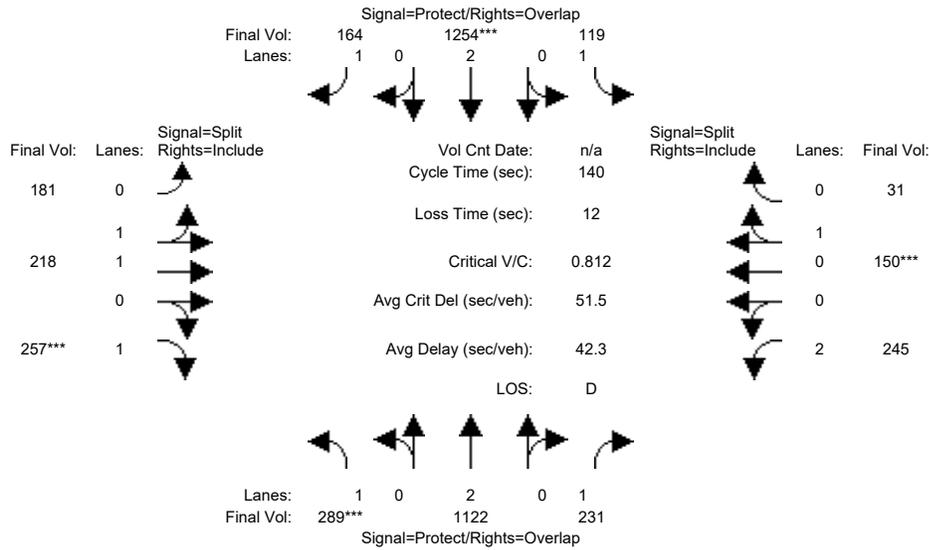
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.83 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 0.67 | 0.33 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1750 | 1900 | 1750 | 3150 | 1197 | 603  |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.08 | 0.20 | 0.11 | 0.03 | 0.26 | 0.20 | 0.07 | 0.05 | 0.15 | 0.14 | 0.12 | 0.12 |
| Crit Moves:               | **** |      |      |      | **** |      |      |      | **** | **** |      |      |
| Green Time:               | 15.0 | 50.3 | 76.3 | 13.8 | 49.0 | 76.9 | 27.9 | 27.9 | 27.9 | 26.0 | 26.0 | 26.0 |
| Volume/Cap:               | 0.68 | 0.51 | 0.19 | 0.31 | 0.68 | 0.34 | 0.33 | 0.23 | 0.68 | 0.68 | 0.61 | 0.61 |
| Uniform Del:              | 55.1 | 30.4 | 12.5 | 53.7 | 33.9 | 13.5 | 43.2 | 42.2 | 46.9 | 48.1 | 47.4 | 47.4 |
| IncrementDel:             | 8.8  | 0.3  | 0.1  | 1.0  | 1.3  | 0.2  | 0.3  | 0.1  | 4.9  | 2.9  | 3.1  | 3.1  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 64.0 | 30.7 | 12.6 | 54.7 | 35.2 | 13.7 | 43.5 | 42.3 | 51.8 | 51.0 | 50.5 | 50.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 64.0 | 30.7 | 12.6 | 54.7 | 35.2 | 13.7 | 43.5 | 42.3 | 51.8 | 51.0 | 50.5 | 50.5 |
| LOS by Move:              | E    | C    | B    | D-   | D+   | B    | D    | D    | D-   | D-   | D    | D    |
| HCM2kAvgQ:                | 6    | 11   | 4    | 2    | 16   | 7    | 5    | 3    | 11   | 10   | 9    | 9    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 289  | 1122 | 231  | 119  | 1254 | 164  | 181  | 218  | 257  | 245  | 150  | 31   |

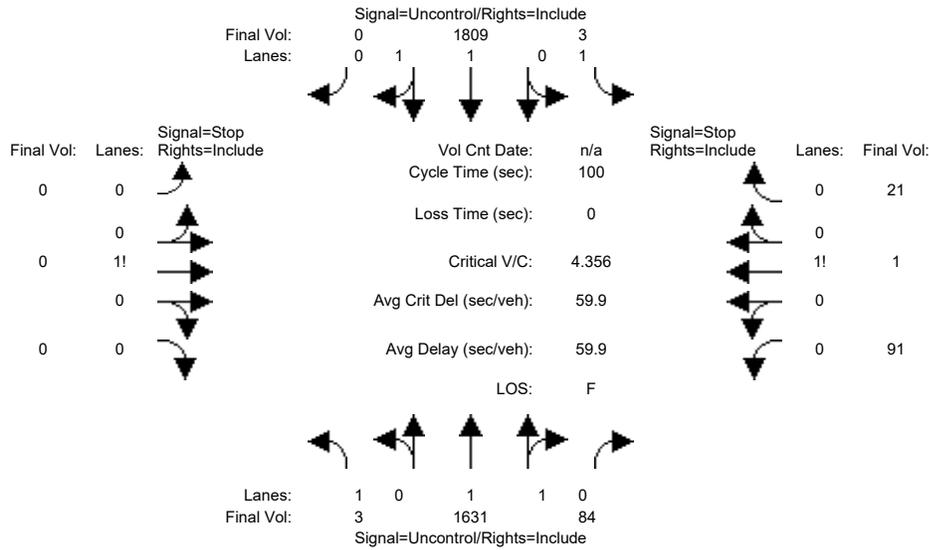
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.95 | 1.00 | 0.92 | 0.83 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 0.93 | 1.07 | 1.00 | 2.00 | 0.83 | 0.17 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1677 | 2020 | 1750 | 3150 | 1492 | 308  |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.17 | 0.30 | 0.13 | 0.07 | 0.33 | 0.09 | 0.11 | 0.11 | 0.15 | 0.08 | 0.10 | 0.10 |
| Crit Moves:               | ***  |      |      |      | **** |      |      |      | **** |      | **** |      |
| Green Time:               | 28.5 | 69.4 | 86.7 | 16.0 | 56.9 | 82.2 | 25.3 | 25.3 | 25.3 | 17.3 | 17.3 | 17.3 |
| Volume/Cap:               | 0.81 | 0.60 | 0.21 | 0.60 | 0.81 | 0.16 | 0.60 | 0.60 | 0.81 | 0.63 | 0.81 | 0.81 |
| Uniform Del:              | 53.2 | 25.3 | 11.7 | 58.9 | 36.8 | 13.2 | 52.7 | 52.7 | 55.1 | 58.3 | 59.7 | 59.7 |
| IncrementDel:             | 13.2 | 0.5  | 0.1  | 4.8  | 3.4  | 0.1  | 1.5  | 1.5  | 14.7 | 3.3  | 19.8 | 19.8 |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 66.4 | 25.8 | 11.8 | 63.8 | 40.2 | 13.2 | 54.1 | 54.1 | 69.7 | 61.5 | 79.5 | 79.5 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 66.4 | 25.8 | 11.8 | 63.8 | 40.2 | 13.2 | 54.1 | 54.1 | 69.7 | 61.5 | 79.5 | 79.5 |
| LOS by Move:              | E    | C    | B+   | E    | D    | B    | D-   | D-   | E    | E    | E-   | E-   |
| HCM2kAvgQ:                | 13   | 17   | 5    | 5    | 24   | 3    | 9    | 9    | 14   | 7    | 10   | 10   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Cumulative AM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 3    | 1631 | 84   | 3    | 1809 | 0    | 0    | 0    | 0    | 91   | 1    | 21   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 3    | 1631 | 84   | 3    | 1809 | 0    | 0    | 0    | 0    | 91   | 1    | 21   |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 3    | 1631 | 84   | 3    | 1809 | 0    | 0    | 0    | 0    | 91   | 1    | 21   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 3    | 1631 | 84   | 3    | 1809 | 0    | 0    | 0    | 0    | 91   | 1    | 21   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 3    | 1631 | 84   | 3    | 1809 | 0    | 0    | 0    | 0    | 91   | 1    | 21   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 6.8 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |      |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|------|------|------|
| Cnflct Vol:  | 1809 | xxxx | xxxxxx | 1715 | xxxx | xxxxxx | 2637 | 3536 | 905  | 2590 | 3494 | 858  |
| Potent Cap.: | 345  | xxxx | xxxxxx | 375  | xxxx | xxxxxx | 12   | 6    | 284  | 21   | 6    | 304  |
| Move Cap.:   | 345  | xxxx | xxxxxx | 375  | xxxx | xxxxxx | 10   | 6    | 284  | 21   | 6    | 304  |
| Volume/Cap:  | 0.01 | xxxx | xxxx   | 0.01 | xxxx | xxxx   | 0.00 | 0.00 | 0.00 | 4.36 | 0.16 | 0.07 |

Level Of Service Module:

|              |               |      |        |               |      |        |               |      |        |               |      |        |
|--------------|---------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| 2Way95thQ:   | 0.0           | xxxx | xxxxxx | 0.0           | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx |
| Control Del: | 15.5          | xxxx | xxxxxx | 14.7          | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx |
| LOS by Move: | C             | *    | *      | B             | *    | *      | *             | *    | *      | *             | *    | *      |
| Movement:    | LT - LTR - RT |      |        |
| Shared Cap.: | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | 0    | xxxxxx | xxxx          | 25   | xxxxxx |
| SharedQueue: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 14.1 | xxxxxx |
| Shrd ConDel: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 1932 | xxxxxx |
| Shared LOS:  | *             | *    | *      | *             | *    | *      | *             | *    | *      | *             | F    | *      |
| ApproachDel: | xxxxxxx       |      |        | xxxxxxx       |      |        | xxxxxxx       |      |        | 1931.8        |      |        |
| ApproachLOS: | *             |      |        | *             |      |        | *             |      |        | F             |      |        |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
Intersection #8 Saratoga Ave & McFarland Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 3 1631 84    | 3 1809 0     | 0 0 0 0    | 91 1 21    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | xxxxxxx    | 1931.8     |

Approach[westbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=60.6]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=113]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=3643]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 3 1631 84    | 3 1809 0     | 0 0 0 0    | 91 1 21    |

Major Street Volume: 3530  
 Minor Approach Volume: 113  
 Minor Approach Volume Threshold: -150 [less than minimum of 100]

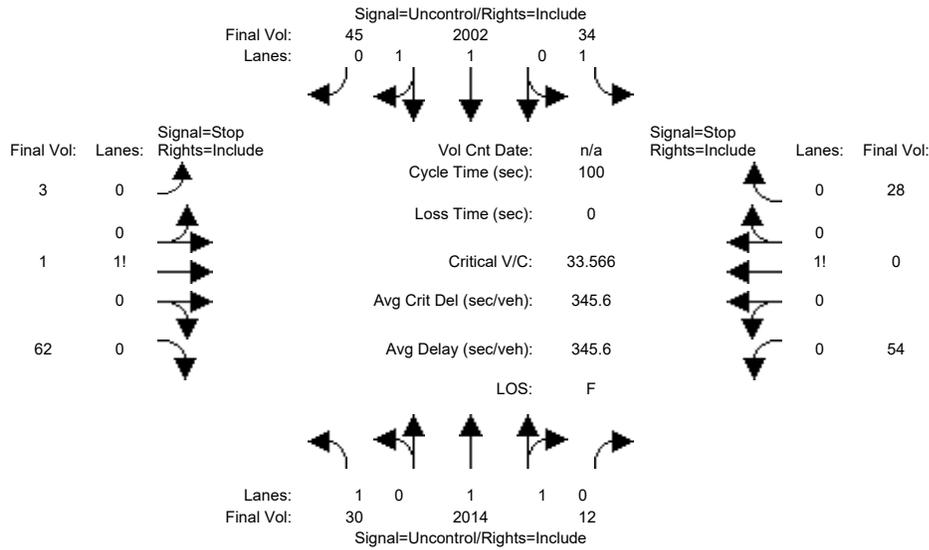
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Cumulative PM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 30   | 2014 | 12   | 34   | 2002 | 45   | 3    | 1    | 62   | 54   | 0    | 28   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 30   | 2014 | 12   | 34   | 2002 | 45   | 3    | 1    | 62   | 54   | 0    | 28   |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 30   | 2014 | 12   | 34   | 2002 | 45   | 3    | 1    | 62   | 54   | 0    | 28   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 30   | 2014 | 12   | 34   | 2002 | 45   | 3    | 1    | 62   | 54   | 0    | 28   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 30   | 2014 | 12   | 34   | 2002 | 45   | 3    | 1    | 62   | 54   | 0    | 28   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |       |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|-------|------|------|
| Cnflct Vol:  | 2047 | xxxx | xxxxxx | 2026 | xxxx | xxxxxx | 3160 | 4179 | 1024 | 3150  | 4195 | 1013 |
| Potent Cap.: | 279  | xxxx | xxxxxx | 284  | xxxx | xxxxxx | 5    | 2    | 236  | 5     | 2    | 240  |
| Move Cap.:   | 279  | xxxx | xxxxxx | 284  | xxxx | xxxxxx | 3    | 2    | 236  | 2     | 2    | 240  |
| Volume/Cap:  | 0.11 | xxxx | xxxx   | 0.12 | xxxx | xxxx   | 0.89 | 0.57 | 0.26 | 33.57 | 0.00 | 0.12 |

Level Of Service Module:

|              |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:   | 0.4           | xxxx          | xxxxxx        | 0.4           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del: | 19.5          | xxxx          | xxxxxx        | 19.4          | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move: | C             | *             | *             | C             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:    | LT - LTR - RT |
| Shared Cap.: | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 38            | xxxxxx        | xxxx          | 2             | xxxxxx        |
| SharedQueue: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 7.0           | xxxxxx        | xxxxxx        | 12.4          | xxxxxx        |
| Shrd ConDel: | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 575           | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shared LOS:  | *             | *             | *             | *             | *             | *             | *             | F             | *             | *             | F             | *             |
| ApproachDel: | xxxxxxx       |               |               | xxxxxxx       |               |               | 574.8         |               | xxxxxxx       |               |               |               |
| ApproachLOS: | *             |               |               | *             |               |               | F             |               | F             |               |               |               |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 30 2014 12   | 34 2002 45   | 3 1 62     | 54 0 28    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 574.8      | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=10.5]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=66]  
 FAIL - Approach volume less than 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=4285]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=400.5]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=82]  
 FAIL - Approach volume less than 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=4285]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 30 2014 12   | 34 2002 45   | 3 1 62     | 54 0 28    |

Major Street Volume: 4137  
 Minor Approach Volume: 82  
 Minor Approach Volume Threshold: -204 [less than minimum of 100]

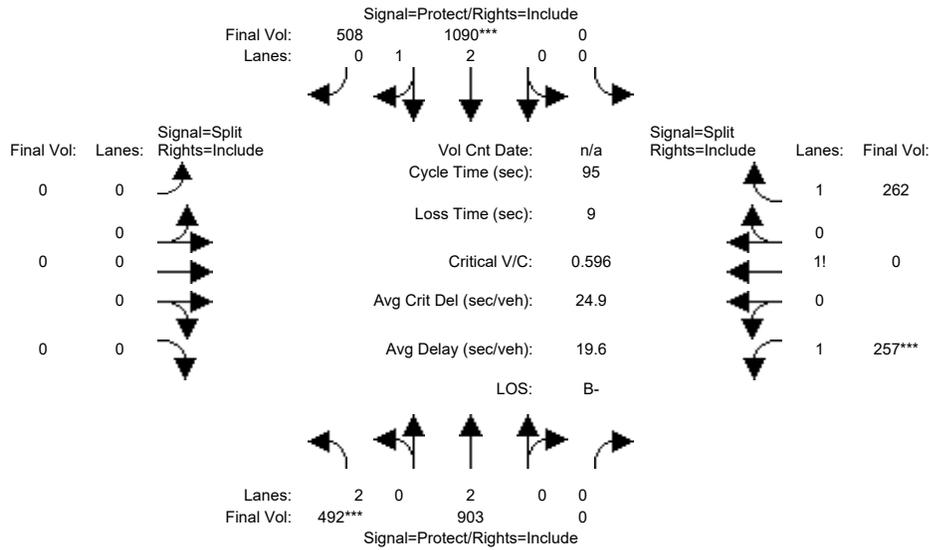
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #9: Saratoga Ave & SR 85 NB Ramps

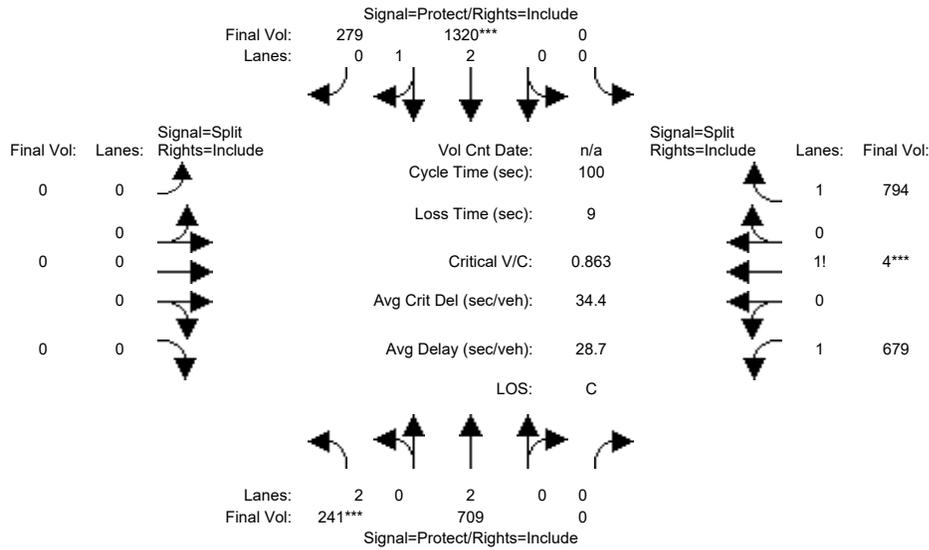


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Northbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 7               | 10   | 0    | 0           | 10   | 10   | 0                      | 0    | 0    | 10         | 10   | 10   |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 492             | 903  | 0    | 0           | 1090 | 508  | 0                      | 0    | 0    | 257        | 0    | 262  |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.83            | 1.00 | 0.92 | 0.92        | 1.00 | 0.95 | 0.92                   | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 2.00            | 2.00 | 0.00 | 0.00        | 2.01 | 0.99 | 0.00                   | 0.00 | 0.00 | 1.50       | 0.00 | 1.50 |
| Final Sat.:               | 3150            | 3800 | 0    | 0           | 3817 | 1779 | 0                      | 0    | 0    | 2617       | 0    | 2633 |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.16            | 0.24 | 0.00 | 0.00        | 0.29 | 0.29 | 0.00                   | 0.00 | 0.00 | 0.10       | 0.00 | 0.10 |
| Crit Moves:               | ***             |      |      |             | **** |      |                        |      |      | ****       |      |      |
| Green Time:               | 24.8            | 70.2 | 0.0  | 0.0         | 45.4 | 45.4 | 0.0                    | 0.0  | 0.0  | 15.8       | 0.0  | 15.8 |
| Volume/Cap:               | 0.60            | 0.32 | 0.00 | 0.00        | 0.60 | 0.60 | 0.00                   | 0.00 | 0.00 | 0.59       | 0.00 | 0.60 |
| Uniform Del:              | 30.7            | 4.2  | 0.0  | 0.0         | 18.1 | 18.1 | 0.0                    | 0.0  | 0.0  | 36.6       | 0.0  | 36.7 |
| IncrementDel:             | 1.2             | 0.1  | 0.0  | 0.0         | 0.4  | 0.4  | 0.0                    | 0.0  | 0.0  | 1.1        | 0.0  | 1.2  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00            | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 0.00                   | 0.00 | 0.00 | 1.00       | 0.00 | 1.00 |
| Delay/Veh:                | 31.9            | 4.3  | 0.0  | 0.0         | 18.5 | 18.5 | 0.0                    | 0.0  | 0.0  | 37.7       | 0.0  | 37.8 |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 31.9            | 4.3  | 0.0  | 0.0         | 18.5 | 18.5 | 0.0                    | 0.0  | 0.0  | 37.7       | 0.0  | 37.8 |
| LOS by Move:              | C               | A    | A    | A           | B-   | B-   | A                      | A    | A    | D+         | A    | D+   |
| HCM2kAvgQ:                | 7               | 4    | 0    | 0           | 11   | 11   | 0                      | 0    | 0    | 6          | 0    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #9: Saratoga Ave & SR 85 NB Ramps

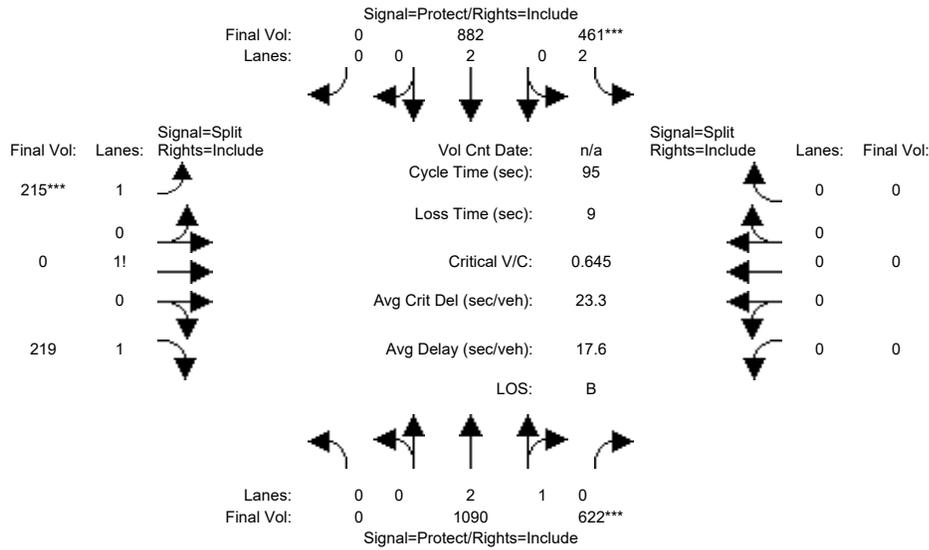


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Northbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 7               | 10   | 0    | 0           | 10   | 10   | 0                      | 0    | 0    | 10         | 10   | 10   |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 241             | 709  | 0    | 0           | 1320 | 279  | 0                      | 0    | 0    | 679        | 4    | 794  |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.83            | 1.00 | 0.92 | 0.92        | 0.99 | 0.95 | 0.92                   | 1.00 | 0.92 | 0.92       | 0.92 | 0.92 |
| Lanes:                    | 2.00            | 2.00 | 0.00 | 0.00        | 2.46 | 0.54 | 0.00                   | 0.00 | 0.00 | 1.46       | 0.01 | 1.53 |
| Final Sat.:               | 3150            | 3800 | 0    | 0           | 4622 | 977  | 0                      | 0    | 0    | 2552       | 9    | 2688 |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.08            | 0.19 | 0.00 | 0.00        | 0.29 | 0.29 | 0.00                   | 0.00 | 0.00 | 0.27       | 0.42 | 0.30 |
| Crit Moves:               | ***             |      |      | ****        |      |      |                        |      |      | ****       |      |      |
| Green Time:               | 8.9             | 42.0 | 0.0  | 0.0         | 33.1 | 33.1 | 0.0                    | 0.0  | 0.0  | 49.0       | 49.0 | 49.0 |
| Volume/Cap:               | 0.86            | 0.44 | 0.00 | 0.00        | 0.86 | 0.86 | 0.00                   | 0.00 | 0.00 | 0.54       | 0.86 | 0.60 |
| Uniform Del:              | 45.0            | 20.7 | 0.0  | 0.0         | 31.3 | 31.3 | 0.0                    | 0.0  | 0.0  | 17.7       | 22.5 | 18.4 |
| IncrementDel:             | 23.1            | 0.2  | 0.0  | 0.0         | 4.5  | 4.5  | 0.0                    | 0.0  | 0.0  | 0.2        | 4.8  | 0.4  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00            | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 0.00                   | 0.00 | 0.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                | 68.0            | 20.9 | 0.0  | 0.0         | 35.8 | 35.8 | 0.0                    | 0.0  | 0.0  | 17.9       | 27.3 | 18.9 |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 68.0            | 20.9 | 0.0  | 0.0         | 35.8 | 35.8 | 0.0                    | 0.0  | 0.0  | 17.9       | 27.3 | 18.9 |
| LOS by Move:              | E               | C+   | A    | A           | D+   | D+   | A                      | A    | A    | B          | C    | B-   |
| HCM2kAvgQ:                | 5               | 7    | 0    | 0           | 16   | 16   | 0                      | 0    | 0    | 11         | 25   | 13   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

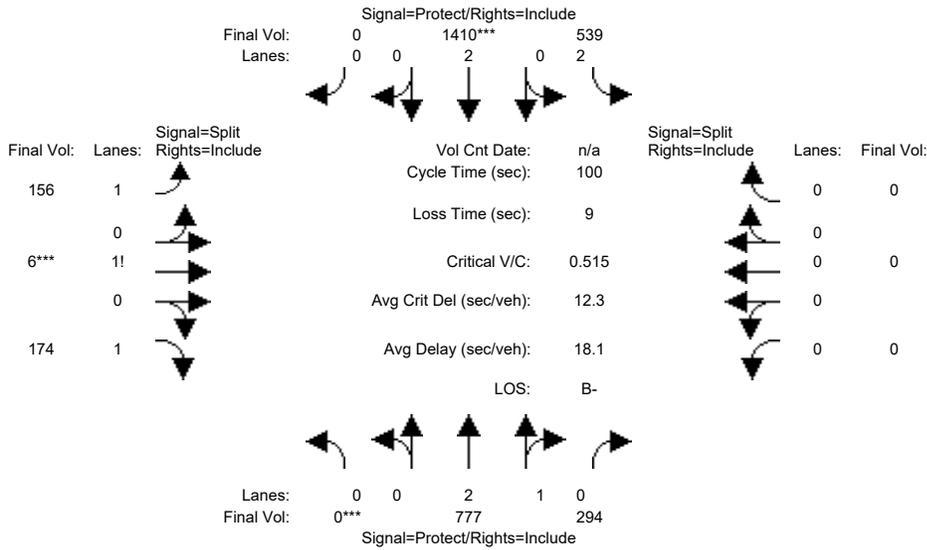


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 1090 | 622  | 461         | 882  | 0    | 215                    | 0    | 219  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.92                   | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.00 | 1.00 | 2.00        | 2.00 | 0.00 | 1.50                   | 0.00 | 1.50 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 3800 | 1750 | 3150        | 3800 | 0    | 2617                   | 0    | 2633 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.29 | 0.36 | 0.15        | 0.23 | 0.00 | 0.08                   | 0.00 | 0.08 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               |                 |      | **** | ****        |      |      | ****                   |      |      |            |      |      |
| Green Time:               | 0.0             | 52.3 | 52.3 | 21.5        | 73.8 | 0.0  | 12.2                   | 0.0  | 12.2 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.52 | 0.65 | 0.65        | 0.30 | 0.00 | 0.64                   | 0.00 | 0.65 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 13.5 | 14.9 | 33.3        | 3.1  | 0.0  | 39.3                   | 0.0  | 39.3 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.2  | 0.6  | 2.1         | 0.1  | 0.0  | 2.0                    | 0.0  | 2.2  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 13.6 | 15.5 | 35.4        | 3.1  | 0.0  | 41.3                   | 0.0  | 41.5 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 13.6 | 15.5 | 35.4        | 3.1  | 0.0  | 41.3                   | 0.0  | 41.5 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | B    | B    | D+          | A    | A    | D                      | A    | D    | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 10   | 14   | 7           | 4    | 0    | 5                      | 0    | 6    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

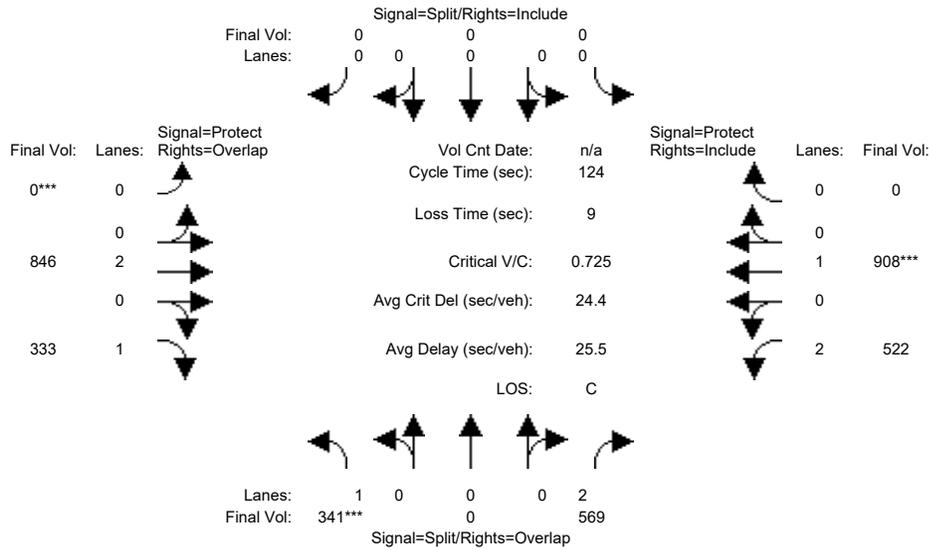


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| Added Vol:                | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 777  | 294  | 539         | 1410 | 0    | 156                    | 6    | 174  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.95 | 0.83        | 1.00 | 0.92 | 0.92                   | 0.92 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.15 | 0.85 | 2.00        | 2.00 | 0.00 | 1.46                   | 0.03 | 1.51 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 4061 | 1536 | 3150        | 3800 | 0    | 2548                   | 61   | 2640 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.19 | 0.19 | 0.17        | 0.37 | 0.00 | 0.06                   | 0.10 | 0.07 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ***             |      |      |             | ***  |      |                        | ***  |      |            |      |      |
| Green Time:               | 0.0             | 38.0 | 38.0 | 34.0        | 72.0 | 0.0  | 19.0                   | 19.0 | 19.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.50 | 0.50 | 0.50        | 0.52 | 0.00 | 0.32                   | 0.52 | 0.35 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 23.7 | 23.7 | 26.3        | 6.2  | 0.0  | 35.0                   | 36.4 | 35.1 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.2  | 0.2  | 0.4         | 0.2  | 0.0  | 0.2                    | 0.7  | 0.2  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 23.9 | 23.9 | 26.7        | 6.4  | 0.0  | 35.2                   | 37.1 | 35.4 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 23.9 | 23.9 | 26.7        | 6.4  | 0.0  | 35.2                   | 37.1 | 35.4 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | C    | C    | C           | A    | A    | D+                     | D+   | D+   | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 9    | 9    | 7           | 9    | 0    | 3                      | 6    | 4    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #11: Fruitvale Ave & Saratoga Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Saratoga Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|-----------------|-----|-----|------------|-----|-----|
|              | North Bound      |     |     | South Bound |     |     | East Bound      |     |     | West Bound |     |     |
| Approach:    |                  |     |     |             |     |     |                 |     |     |            |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L               | T   | R   | L          | T   | R   |
| Min. Green:  | 10               | 0   | 10  | 0           | 0   | 0   | 0               | 10  | 10  | 7          | 10  | 0   |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0             | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |
| Added Vol:     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume:   | 341  | 0    | 569  | 0    | 0    | 0    | 0    | 846  | 333  | 522  | 908  | 0    |

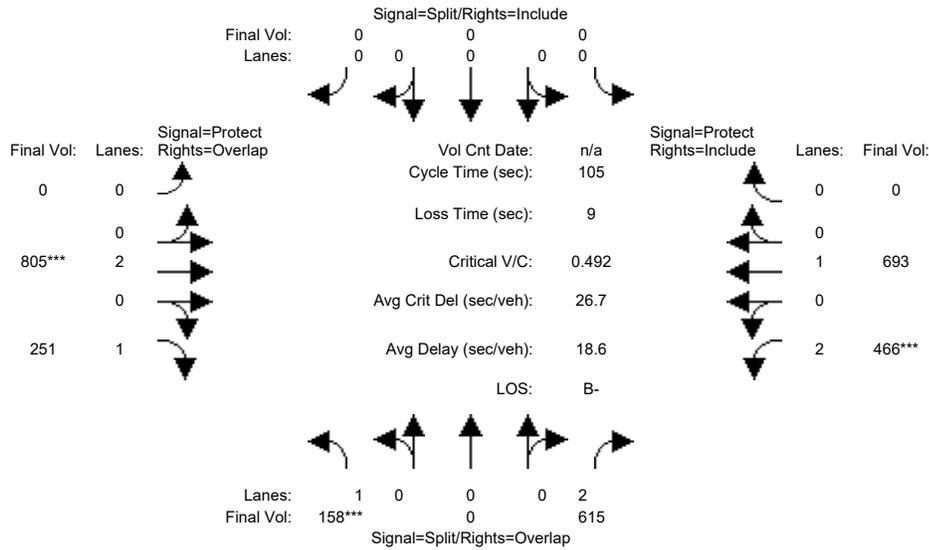
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.83 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 1.00 | 2.00 | 1.00 | 0.00 |
| Final Sat.:             | 1750 | 0    | 3150 | 0    | 0    | 0    | 0    | 3800 | 1750 | 3150 | 1900 | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.19 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.19 | 0.17 | 0.48 | 0.00 |
| Crit Moves:               | ***  |      |      |      |      |      | ***  |      |      | ***  |      |      |
| Green Time:               | 33.3 | 0.0  | 68.2 | 0.0  | 0.0  | 0.0  | 0.0  | 46.8 | 80.1 | 34.9 | 81.7 | 0.0  |
| Volume/Cap:               | 0.73 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 0.29 | 0.59 | 0.73 | 0.00 |
| Uniform Del:              | 41.2 | 0.0  | 15.3 | 0.0  | 0.0  | 0.0  | 0.0  | 30.9 | 9.6  | 38.4 | 13.8 | 0.0  |
| IncrementDel:             | 5.6  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.7  | 0.1  | 1.1  | 2.1  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Delay/Veh:                | 46.8 | 0.0  | 15.5 | 0.0  | 0.0  | 0.0  | 0.0  | 31.5 | 9.7  | 39.5 | 16.0 | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 46.8 | 0.0  | 15.5 | 0.0  | 0.0  | 0.0  | 0.0  | 31.5 | 9.7  | 39.5 | 16.0 | 0.0  |
| LOS by Move:              | D    | A    | B    | A    | A    | A    | A    | C    | A    | D    | B    | A    |
| HCM2kAvgQ:                | 13   | 0    | 7    | 0    | 0    | 0    | 0    | 13   | 6    | 11   | 23   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #11: Fruitvale Ave & Saratoga Ave

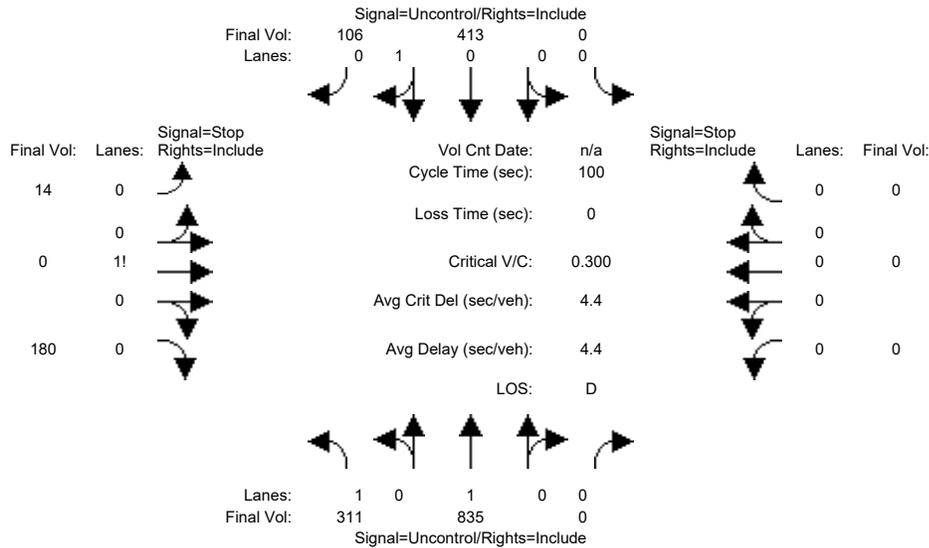


| Street Name:              | Fruitvale Avenue |      |      |             |      |      | Saratoga Avenue |      |      |            |      |      |
|---------------------------|------------------|------|------|-------------|------|------|-----------------|------|------|------------|------|------|
| Approach:                 | North Bound      |      |      | South Bound |      |      | East Bound      |      |      | West Bound |      |      |
| Movement:                 | L                | T    | R    | L           | T    | R    | L               | T    | R    | L          | T    | R    |
| Min. Green:               | 10               | 0    | 10   | 0           | 0    | 0    | 0               | 10   | 10   | 7          | 10   | 0    |
| Y+R:                      | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0             | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Base Vol:                 | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| Growth Adj:               | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| Added Vol:                | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| User Adj:                 | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| Reduct Vol:               | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| PCE Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 158              | 0    | 615  | 0           | 0    | 0    | 0               | 805  | 251  | 466        | 693  | 0    |
| Saturation Flow Module:   |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Sat/Lane:                 | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900            | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92             | 1.00 | 0.83 | 0.92        | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 |
| Lanes:                    | 1.00             | 0.00 | 2.00 | 0.00        | 0.00 | 0.00 | 0.00            | 2.00 | 1.00 | 2.00       | 1.00 | 0.00 |
| Final Sat.:               | 1750             | 0    | 3150 | 0           | 0    | 0    | 0               | 3800 | 1750 | 3150       | 1900 | 0    |
| Capacity Analysis Module: |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Vol/Sat:                  | 0.09             | 0.00 | 0.20 | 0.00        | 0.00 | 0.00 | 0.00            | 0.21 | 0.14 | 0.15       | 0.36 | 0.00 |
| Crit Moves:               | ***              |      |      |             |      |      | ***             |      |      | ***        |      |      |
| Green Time:               | 19.3             | 0.0  | 50.8 | 0.0         | 0.0  | 0.0  | 0.0             | 45.2 | 64.4 | 31.6       | 76.7 | 0.0  |
| Volume/Cap:               | 0.49             | 0.00 | 0.40 | 0.00        | 0.00 | 0.00 | 0.00            | 0.49 | 0.23 | 0.49       | 0.50 | 0.00 |
| Uniform Del:              | 38.5             | 0.0  | 17.4 | 0.0         | 0.0  | 0.0  | 0.0             | 21.6 | 9.1  | 30.1       | 6.0  | 0.0  |
| IncrementDel:             | 1.2              | 0.0  | 0.2  | 0.0         | 0.0  | 0.0  | 0.0             | 0.2  | 0.1  | 0.4        | 0.3  | 0.0  |
| InitQueueDel:             | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00             | 0.00 | 1.00 | 0.00        | 0.00 | 0.00 | 0.00            | 1.00 | 1.00 | 1.00       | 1.00 | 0.00 |
| Delay/Veh:                | 39.7             | 0.0  | 17.5 | 0.0         | 0.0  | 0.0  | 0.0             | 21.9 | 9.3  | 30.6       | 6.3  | 0.0  |
| User DelAdj:              | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 39.7             | 0.0  | 17.5 | 0.0         | 0.0  | 0.0  | 0.0             | 21.9 | 9.3  | 30.6       | 6.3  | 0.0  |
| LOS by Move:              | D                | A    | B    | A           | A    | A    | A               | C+   | A    | C          | A    | A    |
| HCM2kAvgQ:                | 5                | 0    | 7    | 0           | 0    | 0    | 0               | 9    | 4    | 8          | 10   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative AM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and rows for Volume Module (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume).

Table for Critical Gap Module with 12 columns and 2 rows (Critical Gp, FollowUpTim).

Table for Capacity Module with 12 columns and 4 rows (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.).

Table for Level Of Service Module with 12 columns and 10 rows (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS).

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 311 835 0    | 0 413 106    | 14 0 180   | 0 0 0 0    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 26.4       | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=1.4]  
FAIL - Vehicle-hours less than 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=194]  
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=3][total volume=1859]  
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
Intersection #12 Quito Rd & Cox Ave  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 311 835 0    | 0 413 106    | 14 0 180   | 0 0 0 0    |

Major Street Volume: 1665  
Minor Approach Volume: 194  
Minor Approach Volume Threshold: 109

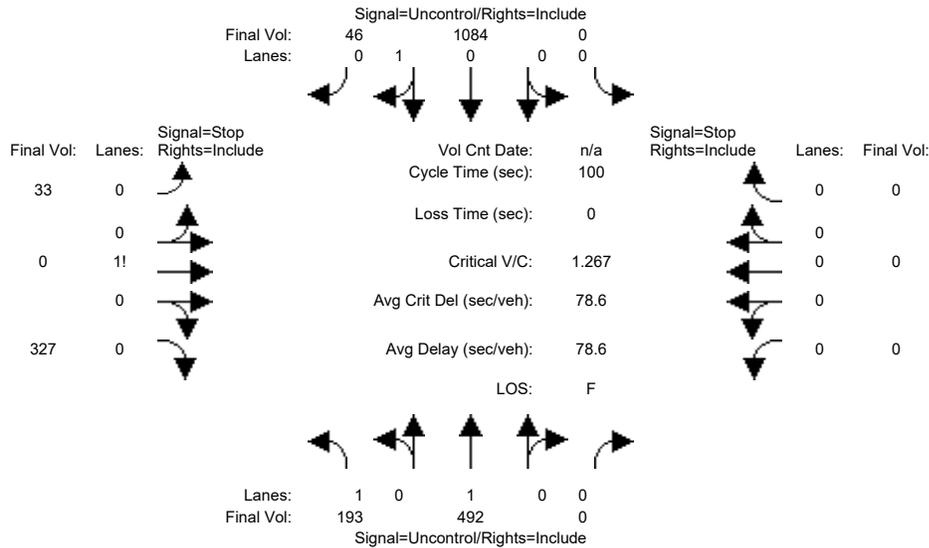
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative PM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and rows for Volume Module (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume).

Table for Critical Gap Module with columns for movements and rows for Critical Gap and FollowUpTim.

Table for Capacity Module with columns for movements and rows for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Table for Level Of Service Module with columns for movements and rows for 2Way95thQ, Control Del, LOS by Move, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 193 492 0    | 0 1084 46    | 33 0 327   | 0 0 0 0    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 467.5      | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=46.7]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=360]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=2175]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 193 492 0    | 0 1084 46    | 33 0 327   | 0 0 0 0    |

Major Street Volume: 1815  
 Minor Approach Volume: 360  
 Minor Approach Volume Threshold: 79 [less than minimum of 100]

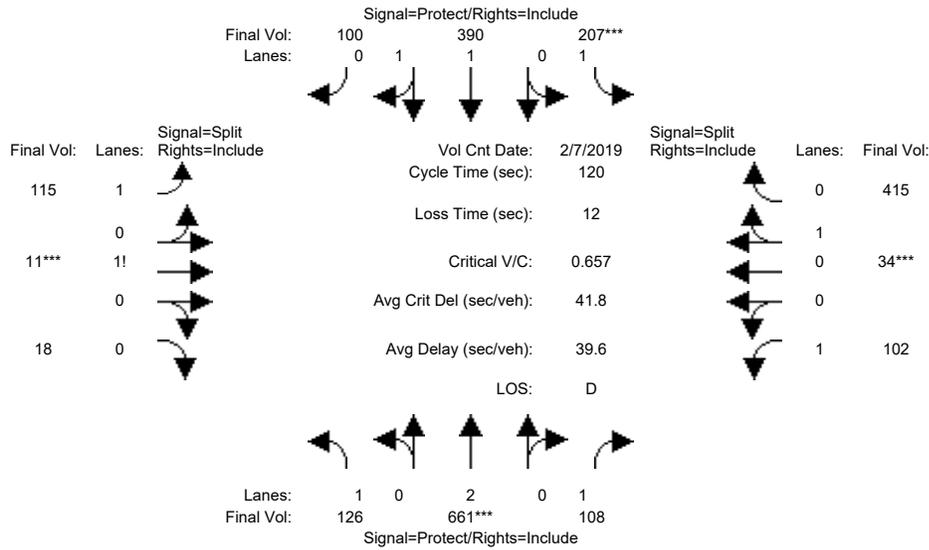
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >>   | Count | Date: | 7 Feb 2019 | <<   | 7:30 AM - 8:30 AM |      |      |      |      |      |      |
|----------------|------|-------|-------|------------|------|-------------------|------|------|------|------|------|------|
| Base Vol:      | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |
| Added Vol:     | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |
| Reduct Vol:    | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 126  | 661   | 108   | 207        | 390  | 100               | 115  | 11   | 18   | 102  | 34   | 415  |

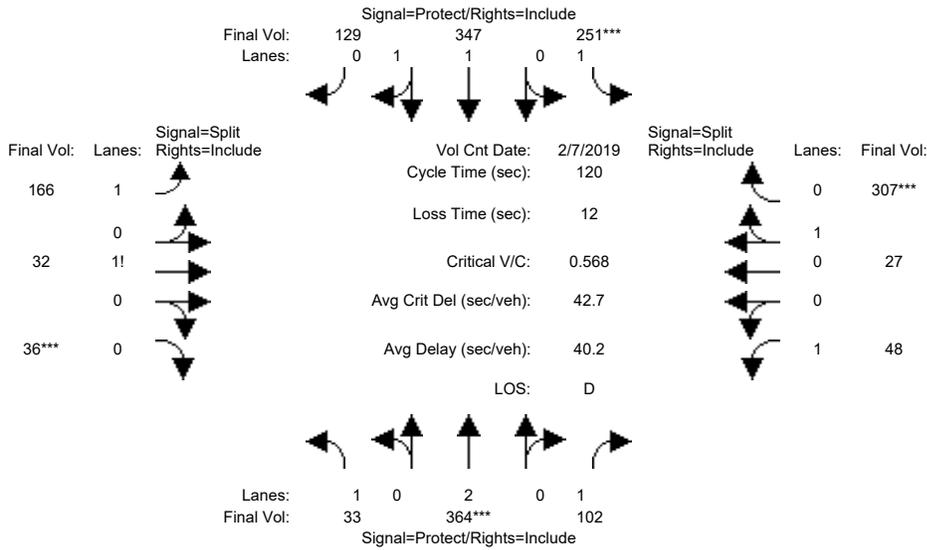
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.58 | 0.42 | 1.66 | 0.13 | 0.21 | 1.00 | 0.08 | 0.92 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2944 | 755  | 2913 | 223  | 364  | 1750 | 136  | 1664 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.17 | 0.06 | 0.12 | 0.13 | 0.13 | 0.04 | 0.05 | 0.05 | 0.06 | 0.25 | 0.25 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 18.6 | 31.5 | 31.5 | 21.4 | 34.3 | 34.3 | 10.0 | 10.0 | 10.0 | 45.1 | 45.1 | 45.1 |
| Volume/Cap:               | 0.46 | 0.66 | 0.24 | 0.66 | 0.46 | 0.46 | 0.47 | 0.59 | 0.59 | 0.15 | 0.66 | 0.66 |
| Uniform Del:              | 46.1 | 39.5 | 34.8 | 45.9 | 35.3 | 35.3 | 52.5 | 53.0 | 53.0 | 24.8 | 31.1 | 31.1 |
| IncrementDel:             | 1.3  | 1.7  | 0.3  | 5.3  | 0.3  | 0.3  | 1.2  | 3.9  | 3.9  | 0.1  | 2.5  | 2.5  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 47.4 | 41.2 | 35.1 | 51.2 | 35.6 | 35.6 | 53.7 | 56.9 | 56.9 | 24.9 | 33.6 | 33.6 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 47.4 | 41.2 | 35.1 | 51.2 | 35.6 | 35.6 | 53.7 | 56.9 | 56.9 | 24.9 | 33.6 | 33.6 |
| LOS by Move:              | D    | D    | D+   | D-   | D+   | D+   | D-   | E+   | E+   | C    | C-   | C-   |
| HCM2kAvgQ:                | 5    | 12   | 3    | 8    | 7    | 7    | 3    | 4    | 4    | 3    | 14   | 14   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
|              | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Approach:    | L                | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >>   | Count | Date: | 7 Feb 2019 | <<   | 4:00 PM - 5:00 PM |
|----------------|------|-------|-------|------------|------|-------------------|
| Base Vol:      | 33   | 364   | 102   | 251        | 347  | 129               |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              |
| Initial Bse:   | 33   | 364   | 102   | 251        | 347  | 129               |
| Added Vol:     | 0    | 0     | 0     | 0          | 0    | 0                 |
| PasserByVol:   | 0    | 0     | 0     | 0          | 0    | 0                 |
| Initial Fut:   | 33   | 364   | 102   | 251        | 347  | 129               |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              |
| PHF Volume:    | 33   | 364   | 102   | 251        | 347  | 129               |
| Reduct Vol:    | 0    | 0     | 0     | 0          | 0    | 0                 |
| Reduced Vol:   | 33   | 364   | 102   | 251        | 347  | 129               |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              |
| Final Volume:  | 33   | 364   | 102   | 251        | 347  | 129               |

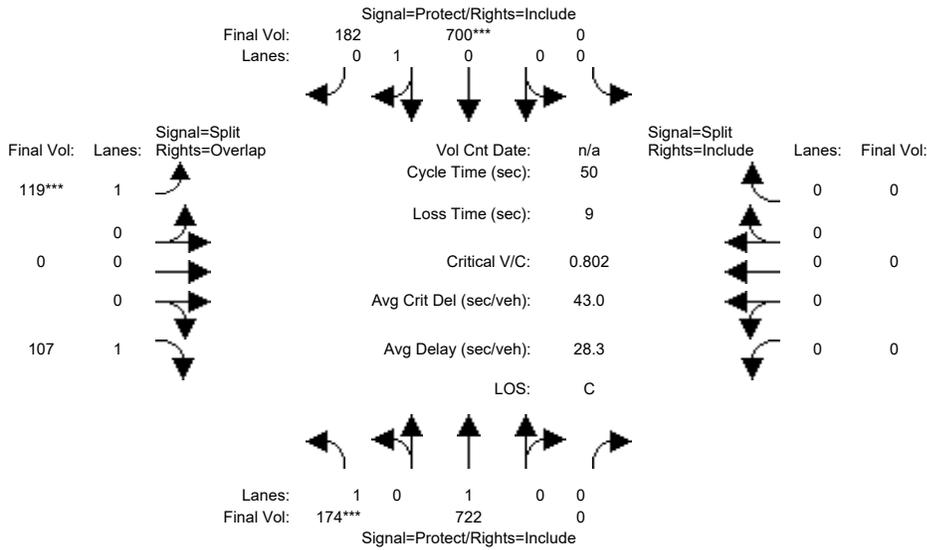
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.44 | 0.56 | 1.55 | 0.21 | 0.24 | 1.00 | 0.08 | 0.92 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2697 | 1002 | 2712 | 371  | 417  | 1750 | 146  | 1654 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.02 | 0.10 | 0.06 | 0.14 | 0.13 | 0.13 | 0.06 | 0.09 | 0.09 | 0.03 | 0.19 | 0.19 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 15.8 | 20.2 | 20.2 | 30.3 | 34.8 | 34.8 | 18.2 | 18.2 | 18.2 | 39.2 | 39.2 | 39.2 |
| Volume/Cap:               | 0.14 | 0.57 | 0.35 | 0.57 | 0.44 | 0.44 | 0.40 | 0.57 | 0.57 | 0.08 | 0.57 | 0.57 |
| Uniform Del:              | 46.1 | 45.9 | 44.0 | 39.1 | 34.7 | 34.7 | 46.0 | 47.2 | 47.2 | 28.0 | 33.4 | 33.4 |
| IncrementDel:             | 0.3  | 1.2  | 0.7  | 1.7  | 0.3  | 0.3  | 0.5  | 1.9  | 1.9  | 0.1  | 1.3  | 1.3  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 46.4 | 47.1 | 44.7 | 40.9 | 35.0 | 35.0 | 46.4 | 49.1 | 49.1 | 28.0 | 34.7 | 34.7 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 46.4 | 47.1 | 44.7 | 40.9 | 35.0 | 35.0 | 46.4 | 49.1 | 49.1 | 28.0 | 34.7 | 34.7 |
| LOS by Move:              | D    | D    | D    | D    | D+   | D+   | D    | D    | D    | C    | C-   | C-   |
| HCM2kAvgQ:                | 1    | 7    | 4    | 9    | 7    | 7    | 4    | 6    | 6    | 1    | 11   | 11   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #14: Quito Rd & Allendale Ave

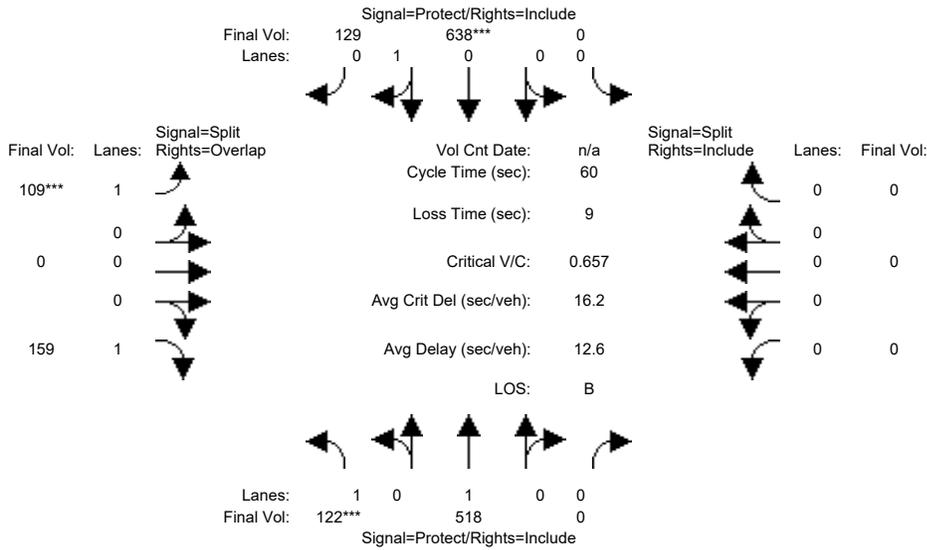


| Street Name:              | Quito Road  |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                 | North Bound |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                 | L           | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:               | 7           | 10   | 0    | 0           | 10   | 10   | 10               | 0    | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |             |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                 | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| Growth Adj:               | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| Added Vol:                | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| User Adj:                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| Reduct Vol:               | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:              | 174         | 722  | 0    | 0           | 700  | 182  | 119              | 0    | 107  | 0          | 0    | 0    |
| Saturation Flow Module:   |             |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                 | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92        | 1.00 | 0.92 | 0.92        | 0.95 | 0.95 | 0.92             | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 1.00        | 1.00 | 0.00 | 0.00        | 0.79 | 0.21 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 1750        | 1900 | 0    | 0           | 1429 | 371  | 1750             | 0    | 1750 | 0          | 0    | 0    |
| Capacity Analysis Module: |             |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                  | 0.10        | 0.38 | 0.00 | 0.00        | 0.49 | 0.49 | 0.07             | 0.00 | 0.06 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ***         |      |      | ****        |      |      | ****             |      |      |            |      |      |
| Green Time:               | 7.0         | 31.0 | 0.0  | 0.0         | 24.0 | 24.0 | 10.0             | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.71        | 0.61 | 0.00 | 0.00        | 1.02 | 1.02 | 0.34             | 0.00 | 0.18 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 20.5        | 5.8  | 0.0  | 0.0         | 13.0 | 13.0 | 17.2             | 0.0  | 11.6 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 9.3         | 1.0  | 0.0  | 0.0         | 36.0 | 36.0 | 0.6              | 0.0  | 0.1  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 29.8        | 6.8  | 0.0  | 0.0         | 49.0 | 49.0 | 17.7             | 0.0  | 11.7 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 29.8        | 6.8  | 0.0  | 0.0         | 49.0 | 49.0 | 17.7             | 0.0  | 11.7 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | C           | A    | A    | A           | D    | D    | B                | A    | B+   | A          | A    | A    |
| HCM2kAvgQ:                | 5           | 8    | 0    | 0           | 21   | 21   | 2                | 0    | 1    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #14: Quito Rd & Allendale Ave

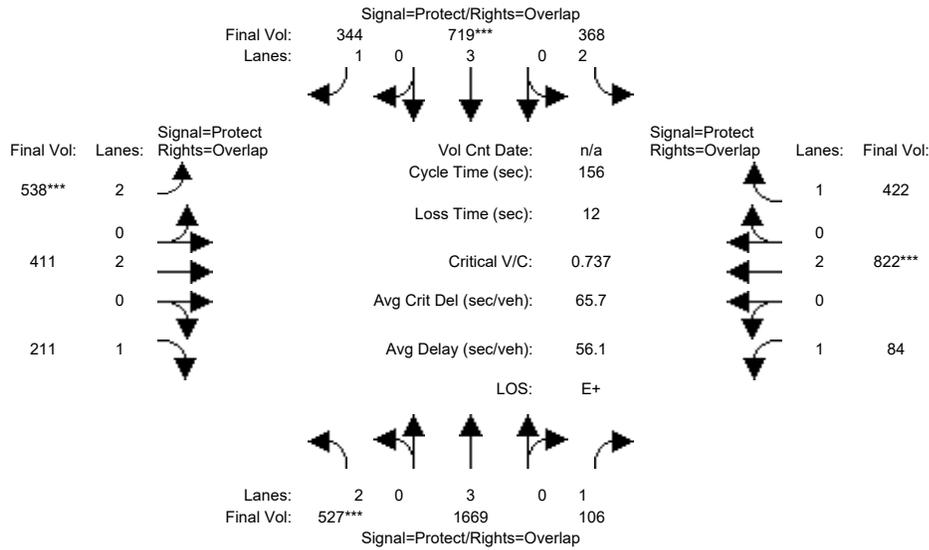


| Street Name:              | Quito Road  |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                 | North Bound |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                 | L           | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:               | 7           | 10   | 0    | 0           | 10   | 10   | 10               | 0    | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |             |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                 | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| Growth Adj:               | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| Added Vol:                | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| User Adj:                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| Reduct Vol:               | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 122         | 518  | 0    | 0           | 638  | 129  | 109              | 0    | 159  | 0          | 0    | 0    |
| Saturation Flow Module:   |             |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                 | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92        | 1.00 | 0.92 | 0.92        | 0.95 | 0.95 | 0.92             | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 1.00        | 1.00 | 0.00 | 0.00        | 0.83 | 0.17 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 1750        | 1900 | 0    | 0           | 1497 | 303  | 1750             | 0    | 1750 | 0          | 0    | 0    |
| Capacity Analysis Module: |             |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                  | 0.07        | 0.27 | 0.00 | 0.00        | 0.43 | 0.43 | 0.06             | 0.00 | 0.09 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ****        |      |      | ****        |      |      | ****             |      |      |            |      |      |
| Green Time:               | 7.0         | 41.0 | 0.0  | 0.0         | 34.0 | 34.0 | 10.0             | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.60        | 0.40 | 0.00 | 0.00        | 0.75 | 0.75 | 0.37             | 0.00 | 0.32 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 25.2        | 4.1  | 0.0  | 0.0         | 9.8  | 9.8  | 22.2             | 0.0  | 16.9 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 4.8         | 0.2  | 0.0  | 0.0         | 3.2  | 3.2  | 0.8              | 0.0  | 0.4  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 30.0        | 4.3  | 0.0  | 0.0         | 13.0 | 13.0 | 23.0             | 0.0  | 17.3 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 30.0        | 4.3  | 0.0  | 0.0         | 13.0 | 13.0 | 23.0             | 0.0  | 17.3 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | C           | A    | A    | A           | B    | B    | C                | A    | B    | A          | A    | A    |
| HCM2kAvgQ:                | 3           | 4    | 0    | 0           | 11   | 11   | 2                | 0    | 2    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 18          | 47  | 47  | 15          | 44  | 44  | 27         | 55  | 55  | 16         | 44  | 44  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 527  | 1669 | 106  | 368  | 719  | 344  | 538  | 411  | 211  | 84   | 822  | 422  |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:      | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 3150 | 5700 | 1750 | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 3800 | 1750 |

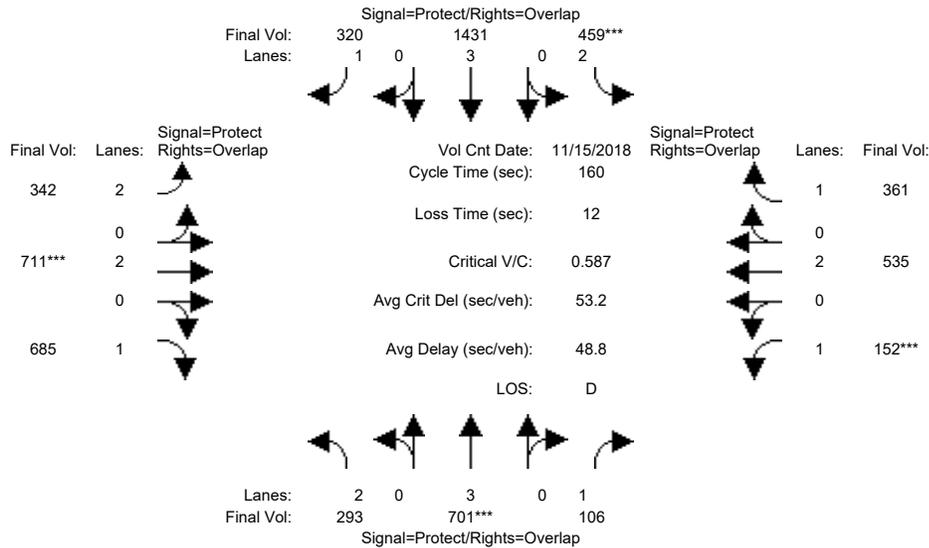
Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.17 | 0.29 | 0.06 | 0.12 | 0.13 | 0.20 | 0.17 | 0.11 | 0.12 | 0.05 | 0.22 | 0.24 |
| Crit Moves:   | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:   | 27.7 | 51.7 | 68.0 | 20.0 | 44.0 | 72.3 | 28.3 | 56.0 | 83.7 | 16.3 | 44.0 | 64.0 |
| Volume/Cap:   | 0.94 | 0.88 | 0.14 | 0.91 | 0.45 | 0.42 | 0.94 | 0.30 | 0.22 | 0.46 | 0.77 | 0.59 |
| Uniform Del:  | 63.3 | 49.3 | 26.4 | 67.1 | 46.0 | 28.0 | 63.0 | 35.9 | 19.0 | 65.7 | 51.3 | 35.7 |
| IncramntDel:  | 24.4 | 5.4  | 0.1  | 24.1 | 0.2  | 0.4  | 24.1 | 0.1  | 0.1  | 1.8  | 3.4  | 1.3  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 87.8 | 54.7 | 26.5 | 91.1 | 46.2 | 28.3 | 87.1 | 36.1 | 19.2 | 67.5 | 54.7 | 37.0 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 87.8 | 54.7 | 26.5 | 91.1 | 46.2 | 28.3 | 87.1 | 36.1 | 19.2 | 67.5 | 54.7 | 37.0 |
| LOS by Move:  | F    | D-   | C    | F    | D    | C    | F    | D+   | B-   | E    | D-   | D+   |
| HCM2kAvgQ:    | 17   | 26   | 3    | 14   | 9    | 12   | 16   | 7    | 5    | 5    | 19   | 17   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 18          | 41  | 41  | 30          | 53  | 53  | 29         | 46  | 46  | 20         | 37  | 37  |
| Y+R:        | 6.3         | 6.2 | 6.2 | 6.3         | 6.2 | 6.2 | 5.3        | 5.8 | 5.8 | 5.3        | 6.0 | 6.0 |

| Volume Module: | >> Count Date: 15 Nov 2018 << 4:30 - 5:30 PM |      |      |      |      |      |      |      |      |      |      |      |
|----------------|----------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |
| Growth Adj:    | 1.00                                         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |
| Added Vol:     | 0                                            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol:   | 0                                            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |
| User Adj:      | 1.00                                         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00                                         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |
| Reduct Vol:    | 0                                            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |
| PCE Adj:       | 1.00                                         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00                                         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume:   | 293                                          | 701  | 106  | 459  | 1431 | 320  | 342  | 711  | 685  | 152  | 535  | 361  |

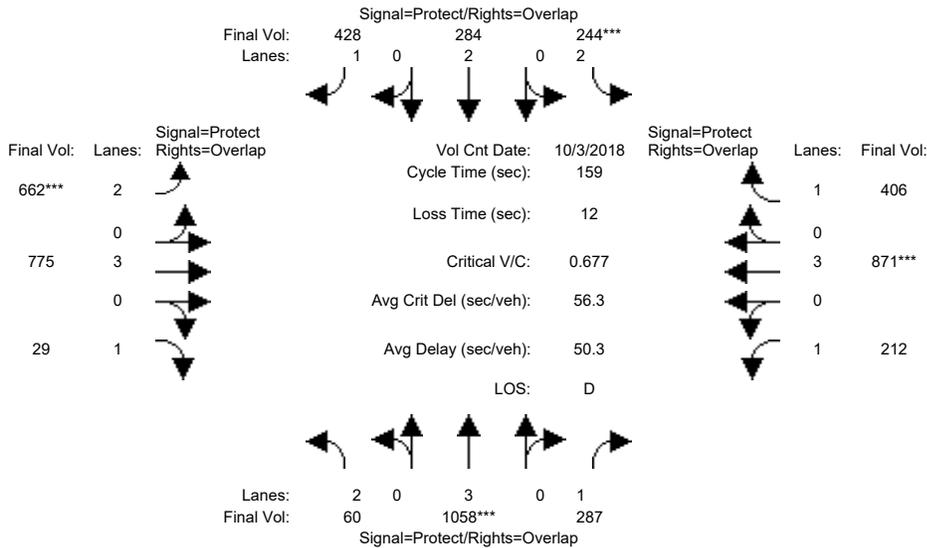
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 |
| Final Sat.:             | 3150 | 5700 | 1750 | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 3800 | 1750 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.09 | 0.12 | 0.06 | 0.15 | 0.25 | 0.18 | 0.11 | 0.19 | 0.39 | 0.09 | 0.14 | 0.21 |
| Crit Moves:               | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** | **** |
| Green Time:               | 19.8 | 41.0 | 63.1 | 37.2 | 58.3 | 89.0 | 30.7 | 47.7 | 67.5 | 22.1 | 39.2 | 76.3 |
| Volume/Cap:               | 0.75 | 0.48 | 0.15 | 0.63 | 0.69 | 0.33 | 0.57 | 0.63 | 0.93 | 0.63 | 0.58 | 0.43 |
| Uniform Del:              | 67.7 | 50.5 | 31.2 | 55.2 | 43.1 | 19.3 | 58.6 | 48.5 | 43.9 | 65.0 | 53.1 | 27.6 |
| IncrcmntDel:              | 8.0  | 0.2  | 0.1  | 1.7  | 1.0  | 0.2  | 1.3  | 1.1  | 17.8 | 5.2  | 0.9  | 0.4  |
| InitQueuDel:              | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.90 | 1.00 | 0.93 | 0.67 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 75.7 | 50.7 | 28.2 | 56.9 | 41.1 | 13.1 | 59.9 | 49.6 | 61.8 | 70.2 | 54.0 | 27.9 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 75.7 | 50.7 | 28.2 | 56.9 | 41.1 | 13.1 | 59.9 | 49.6 | 61.8 | 70.2 | 54.0 | 27.9 |
| LOS by Move:              | E-   | D    | C    | E+   | D    | B    | E+   | D    | E    | E    | D-   | C    |
| HCM2kAvgQ:                | 9    | 9    | 3    | 12   | 18   | 6    | 9    | 15   | 37   | 8    | 12   | 12   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative AM

Intersection #5640: LAWRENCE EXPWY/SARATOGA

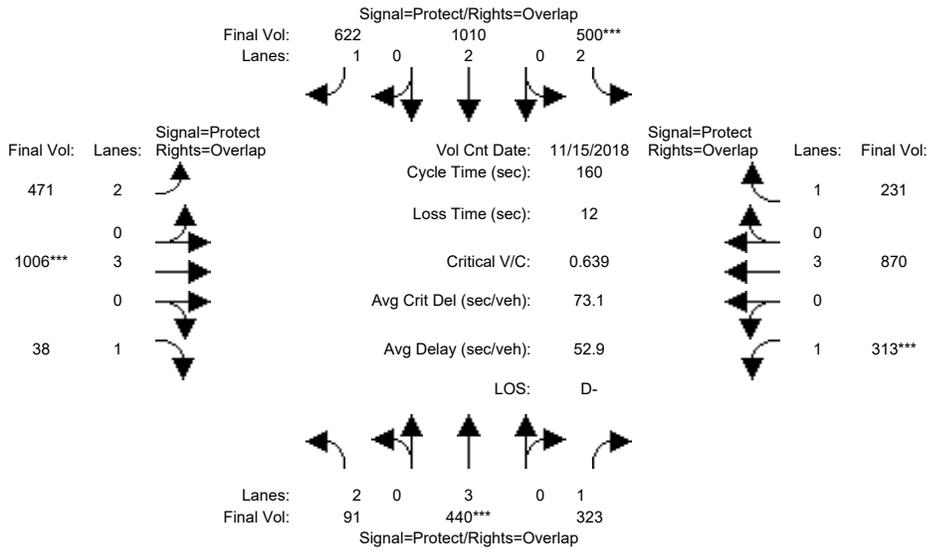


| Approach:                                             | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Movement:                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                           | 10          | 58   | 58   | 3           | 52   | 52   | 38         | 55   | 55   | 19         | 36   | 36   |
| Y+R:                                                  | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: 3 Oct 2018 << 7:45-8:45 |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                             | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| Growth Adj:                                           | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                          | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| Added Vol:                                            | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:                                          | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                          | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| User Adj:                                             | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                           | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| Reduct Vol:                                           | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                          | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| PCE Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:                                          | 60          | 1058 | 287  | 244         | 284  | 428  | 662        | 775  | 29   | 212        | 871  | 406  |
| Saturation Flow Module:                               |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                             | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                           | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00 | 2.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                           | 3150        | 5700 | 1750 | 3150        | 3800 | 1750 | 3150       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                             |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                              | 0.02        | 0.19 | 0.16 | 0.08        | 0.07 | 0.24 | 0.21       | 0.14 | 0.02 | 0.12       | 0.15 | 0.23 |
| Crit Moves:                                           | ****        | **** | **** | ****        | **** | **** | ****       | **** | **** | ****       | **** | **** |
| Green Time:                                           | 11.7        | 58.0 | 77.4 | 14.3        | 60.6 | 99.3 | 38.7       | 55.3 | 67.0 | 19.4       | 36.0 | 50.3 |
| Volume/Cap:                                           | 0.26        | 0.51 | 0.34 | 0.86        | 0.20 | 0.39 | 0.86       | 0.39 | 0.04 | 0.99       | 0.67 | 0.73 |
| Uniform Del:                                          | 69.6        | 39.4 | 25.1 | 71.4        | 32.9 | 14.8 | 57.6       | 39.1 | 27.1 | 69.7       | 56.2 | 48.4 |
| IncrementDel:                                         | 0.6         | 0.2  | 0.2  | 22.8        | 0.1  | 0.2  | 9.9        | 0.1  | 0.0  | 59.7       | 1.4  | 5.1  |
| InitQueueDel:                                         | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                            | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                            | 70.2        | 39.6 | 25.3 | 94.2        | 33.0 | 15.0 | 67.5       | 39.2 | 27.1 | 129.5      | 57.6 | 53.5 |
| User DelAdj:                                          | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                           | 70.2        | 39.6 | 25.3 | 94.2        | 33.0 | 15.0 | 67.5       | 39.2 | 27.1 | 129.5      | 57.6 | 53.5 |
| LOS by Move:                                          | E           | D    | C    | F           | C-   | B    | E          | D    | C    | F          | E+   | D-   |
| HCM2kAvgQ:                                            | 2           | 13   | 9    | 8           | 4    | 11   | 20         | 9    | 1    | 15         | 14   | 20   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative PM

Intersection #5640: LAWRENCE EXPWY/SARATOGA



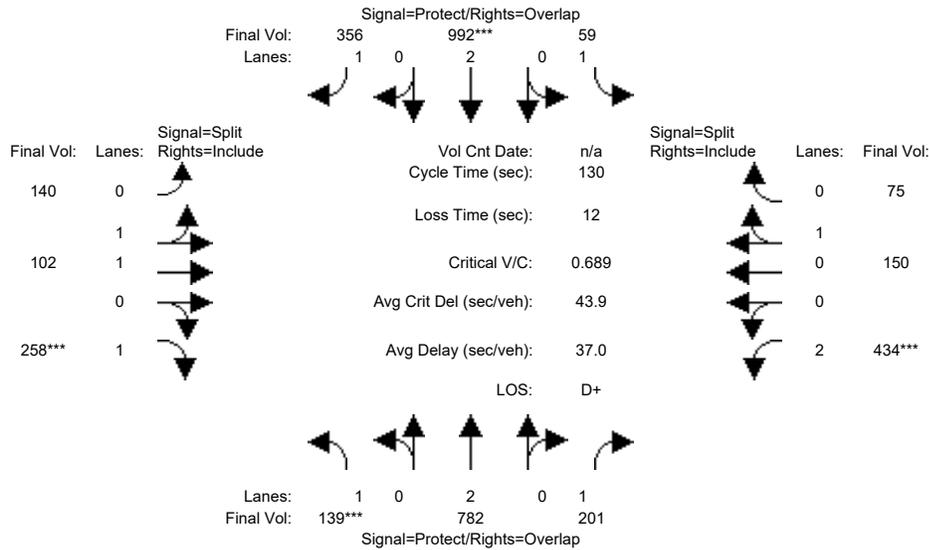
| Approach:                                                   | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Movement:                                                   | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                                 | 12          | 54   | 54   | 15          | 58   | 58   | 31         | 40   | 40   | 27         | 36   | 36   |
| Y+R:                                                        | 5.4         | 6.2  | 6.2  | 5.6         | 6.2  | 6.2  | 6.0        | 6.0  | 6.0  | 6.0        | 5.8  | 5.8  |
| Volume Module: >> Count Date: 15 Nov 2018 << 5:00 - 6:00 PM |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                                   | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| Growth Adj:                                                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| Added Vol:                                                  | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:                                                | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| User Adj:                                                   | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                 | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| Reduct Vol:                                                 | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| PCE Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:                                                | 91          | 440  | 323  | 500         | 1010 | 622  | 471        | 1006 | 38   | 313        | 870  | 231  |
| Saturation Flow Module:                                     |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                                   | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                 | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                      | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00 | 2.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                                 | 3150        | 5700 | 1750 | 3150        | 3800 | 1750 | 3150       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                                   |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                                    | 0.03        | 0.08 | 0.18 | 0.16        | 0.27 | 0.36 | 0.15       | 0.18 | 0.02 | 0.18       | 0.15 | 0.13 |
| Crit Moves:                                                 | ****        |      |      | ****        |      |      | ****       |      |      | ****       |      |      |
| Green Time:                                                 | 13.6        | 54.0 | 82.6 | 25.4        | 65.8 | 97.5 | 31.7       | 40.0 | 53.6 | 28.6       | 36.9 | 62.3 |
| Volume/Cap:                                                 | 0.34        | 0.23 | 0.36 | 1.00        | 0.65 | 0.58 | 0.75       | 0.71 | 0.06 | 1.00       | 0.66 | 0.34 |
| Uniform Del:                                                | 69.0        | 38.0 | 23.0 | 67.3        | 37.8 | 18.9 | 60.4       | 54.6 | 36.2 | 65.7       | 55.9 | 34.4 |
| IncrcmntDel:                                                | 0.8         | 0.1  | 0.2  | 40.3        | 1.0  | 0.8  | 5.2        | 1.6  | 0.0  | 50.9       | 1.3  | 0.3  |
| InitQueuDel:                                                | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                  | 1.00        | 1.09 | 1.26 | 1.00        | 0.88 | 0.55 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                  | 69.7        | 41.5 | 29.2 | 107.6       | 34.3 | 11.3 | 65.6       | 56.3 | 36.2 | 116.6      | 57.2 | 34.7 |
| User DelAdj:                                                | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                 | 69.7        | 41.5 | 29.2 | 107.6       | 34.3 | 11.3 | 65.6       | 56.3 | 36.2 | 116.6      | 57.2 | 34.7 |
| LOS by Move:                                                | E           | D    | C    | F           | C-   | B+   | E          | E+   | D+   | F          | E+   | C-   |
| HCM2kAvgQ:                                                  | 2           | 6    | 12   | 17          | 17   | 12   | 13         | 15   | 1    | 22         | 13   | 8    |

Note: Queue reported is the number of cars per lane.



Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 139  | 760  | 201  | 59   | 986  | 353  | 126  | 97   | 258  | 434  | 149  | 75   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 139  | 760  | 201  | 59   | 986  | 353  | 126  | 97   | 258  | 434  | 149  | 75   |
| Added Vol:     | 0    | 22   | 0    | 0    | 6    | 3    | 14   | 5    | 0    | 0    | 1    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 139  | 782  | 201  | 59   | 992  | 356  | 140  | 102  | 258  | 434  | 150  | 75   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 139  | 782  | 201  | 59   | 992  | 356  | 140  | 102  | 258  | 434  | 150  | 75   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 139  | 782  | 201  | 59   | 992  | 356  | 140  | 102  | 258  | 434  | 150  | 75   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 139  | 782  | 201  | 59   | 992  | 356  | 140  | 102  | 258  | 434  | 150  | 75   |

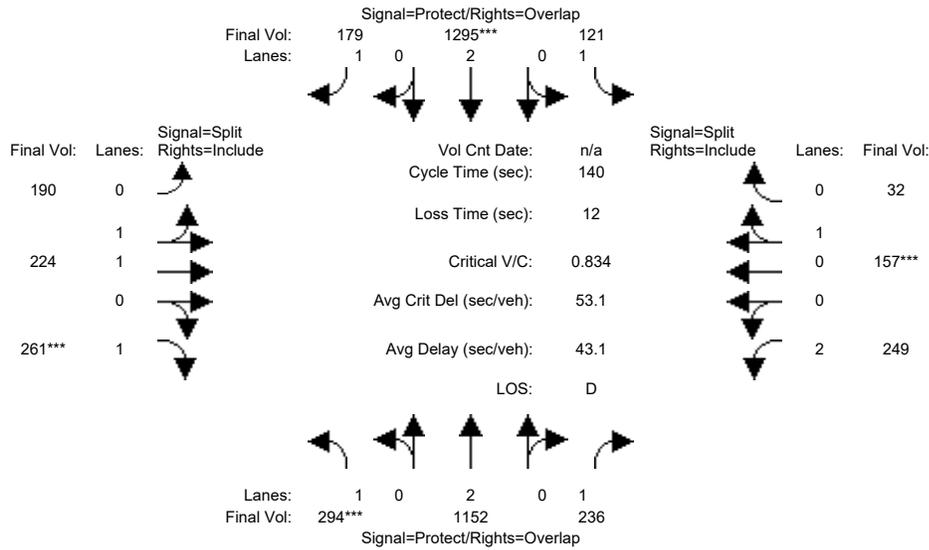
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.83 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 0.67 | 0.33 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1750 | 1900 | 1750 | 3150 | 1200 | 600  |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.08 | 0.21 | 0.11 | 0.03 | 0.26 | 0.20 | 0.08 | 0.05 | 0.15 | 0.14 | 0.13 | 0.13 |
| Crit Moves:               | **** |      |      |      | **** |      |      |      | **** | **** |      |      |
| Green Time:               | 15.0 | 50.9 | 76.9 | 13.3 | 49.2 | 77.0 | 27.8 | 27.8 | 27.8 | 26.0 | 26.0 | 26.0 |
| Volume/Cap:               | 0.69 | 0.53 | 0.19 | 0.33 | 0.69 | 0.34 | 0.37 | 0.25 | 0.69 | 0.69 | 0.63 | 0.63 |
| Uniform Del:              | 55.3 | 30.3 | 12.3 | 54.2 | 34.0 | 13.5 | 43.7 | 42.4 | 47.1 | 48.3 | 47.6 | 47.6 |
| IncrementDel:             | 9.7  | 0.3  | 0.1  | 1.1  | 1.4  | 0.2  | 0.4  | 0.1  | 5.4  | 3.2  | 3.4  | 3.4  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 65.0 | 30.7 | 12.4 | 55.3 | 35.4 | 13.7 | 44.0 | 42.6 | 52.5 | 51.5 | 51.0 | 51.0 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 65.0 | 30.7 | 12.4 | 55.3 | 35.4 | 13.7 | 44.0 | 42.6 | 52.5 | 51.5 | 51.0 | 51.0 |
| LOS by Move:              | E    | C    | B    | E+   | D+   | B    | D    | D    | D-   | D-   | D-   | D-   |
| HCM2kAvgQ:                | 6    | 12   | 4    | 2    | 17   | 8    | 5    | 3    | 11   | 11   | 9    | 9    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #7: Saratoga Ave & Cox Ave



| Street Name: | Saratoga Avenue |     |     |             |     |     | Cox Avenue |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|              | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 10  | 7           | 10  | 10  | 10         | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 294  | 1141 | 235  | 121  | 1275 | 167  | 184  | 222  | 261  | 249  | 153  | 32   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 294  | 1141 | 235  | 121  | 1275 | 167  | 184  | 222  | 261  | 249  | 153  | 32   |
| Added Vol:     | 0    | 11   | 1    | 0    | 20   | 12   | 6    | 2    | 0    | 0    | 4    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 294  | 1152 | 236  | 121  | 1295 | 179  | 190  | 224  | 261  | 249  | 157  | 32   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 294  | 1152 | 236  | 121  | 1295 | 179  | 190  | 224  | 261  | 249  | 157  | 32   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 294  | 1152 | 236  | 121  | 1295 | 179  | 190  | 224  | 261  | 249  | 157  | 32   |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 294  | 1152 | 236  | 121  | 1295 | 179  | 190  | 224  | 261  | 249  | 157  | 32   |

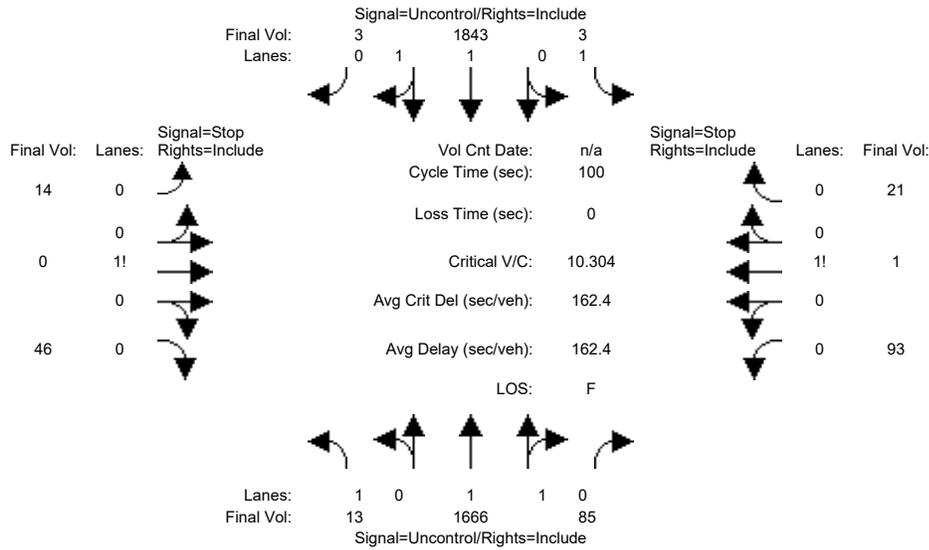
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.95 | 1.00 | 0.92 | 0.83 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 0.94 | 1.06 | 1.00 | 2.00 | 0.83 | 0.17 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 3800 | 1750 | 1697 | 2001 | 1750 | 3150 | 1495 | 305  |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.17 | 0.30 | 0.13 | 0.07 | 0.34 | 0.10 | 0.11 | 0.11 | 0.15 | 0.08 | 0.11 | 0.11 |
| Crit Moves:               | ***  |      |      | **** |      |      |      |      | **** | **** |      |      |
| Green Time:               | 28.2 | 69.5 | 87.1 | 15.9 | 57.2 | 82.2 | 25.0 | 25.0 | 25.0 | 17.6 | 17.6 | 17.6 |
| Volume/Cap:               | 0.83 | 0.61 | 0.22 | 0.61 | 0.83 | 0.17 | 0.63 | 0.63 | 0.83 | 0.63 | 0.83 | 0.83 |
| Uniform Del:              | 53.7 | 25.5 | 11.5 | 59.1 | 37.2 | 13.3 | 53.2 | 53.2 | 55.5 | 58.1 | 59.8 | 59.8 |
| IncramntDel:              | 15.6 | 0.6  | 0.1  | 5.5  | 4.1  | 0.1  | 1.9  | 1.9  | 17.3 | 3.2  | 22.6 | 22.6 |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 69.3 | 26.1 | 11.6 | 64.6 | 41.2 | 13.4 | 55.1 | 55.1 | 72.8 | 61.3 | 82.4 | 82.4 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 69.3 | 26.1 | 11.6 | 64.6 | 41.2 | 13.4 | 55.1 | 55.1 | 72.8 | 61.3 | 82.4 | 82.4 |
| LOS by Move:              | E    | C    | B+   | E    | D    | B    | E+   | E+   | E    | E    | F    | F    |
| HCM2kAvgQ:                | 14   | 17   | 5    | 5    | 25   | 4    | 9    | 9    | 14   | 7    | 11   | 11   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Cumulative + Project AM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 3    | 1659 | 85   | 3    | 1840 | 0    | 0    | 0    | 0    | 93   | 1    | 21   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 3    | 1659 | 85   | 3    | 1840 | 0    | 0    | 0    | 0    | 93   | 1    | 21   |
| Added Vol:   | 10   | 7    | 0    | 0    | 3    | 3    | 14   | 0    | 46   | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 13   | 1666 | 85   | 3    | 1843 | 3    | 14   | 0    | 46   | 93   | 1    | 21   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 13   | 1666 | 85   | 3    | 1843 | 3    | 14   | 0    | 46   | 93   | 1    | 21   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume: | 13   | 1666 | 85   | 3    | 1843 | 3    | 14   | 0    | 46   | 93   | 1    | 21   |

Critical Gap Module:

|              |     |      |        |     |      |        |     |     |     |     |     |     |
|--------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp: | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

Capacity Module:

|              |      |      |        |      |      |        |      |      |      |       |      |      |
|--------------|------|------|--------|------|------|--------|------|------|------|-------|------|------|
| Cnflct Vol:  | 1846 | xxxx | xxxxxx | 1751 | xxxx | xxxxxx | 2710 | 3628 | 923  | 2662  | 3587 | 876  |
| Potent Cap.: | 333  | xxxx | xxxxxx | 363  | xxxx | xxxxxx | 10   | 5    | 276  | 11    | 6    | 296  |
| Move Cap.:   | 333  | xxxx | xxxxxx | 363  | xxxx | xxxxxx | 8    | 5    | 276  | 9     | 5    | 296  |
| Volume/Cap:  | 0.04 | xxxx | xxxx   | 0.01 | xxxx | xxxx   | 1.77 | 0.00 | 0.17 | 10.30 | 0.19 | 0.07 |

Level Of Service Module:

|              |               |      |        |               |      |        |               |      |        |               |      |        |
|--------------|---------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| 2Way95thQ:   | 0.1           | xxxx | xxxxxx | 0.0           | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx |
| Control Del: | 16.2          | xxxx | xxxxxx | 15.0          | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx |
| LOS by Move: | C             | *    | *      | C             | *    | *      | *             | *    | *      | *             | *    | *      |
| Movement:    | LT - LTR - RT |      |        |
| Shared Cap.: | xxxx          | xxxx | xxxxxx | xxxx          | xxxx | xxxxxx | xxxx          | 31   | xxxxxx | xxxx          | 11   | xxxxxx |
| SharedQueue: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 6.9  | xxxxxx | xxxxxx        | 15.8 | xxxxxx |
| Shrd ConDel: | xxxxxx        | xxxx | xxxxxx | xxxxxx        | xxxx | xxxxxx | xxxxxx        | 712  | xxxxxx | xxxxxx        | 4977 | xxxxxx |
| Shared LOS:  | *             | *    | *      | *             | *    | *      | *             | F    | *      | *             | F    | *      |
| ApproachDel: | xxxxxxx       |      |        | xxxxxxx       |      |        | 712.1         |      |        | 4976.9        |      |        |
| ApproachLOS: | *             |      |        | *             |      |        | F             |      |        | F             |      |        |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 13 1666 85   | 3 1843 3     | 14 0 46    | 93 1 21    |
| ApproachDel: | xxxxxx       | xxxxxx       | 712.1      | 4976.9     |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=11.9]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=60]  
 FAIL - Approach volume less than 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=3788]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=159.0]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=115]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=4][total volume=3788]  
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 13 1666 85   | 3 1843 3     | 14 0 46    | 93 1 21    |

Major Street Volume: 3613  
 Minor Approach Volume: 115  
 Minor Approach Volume Threshold: -158 [less than minimum of 100]

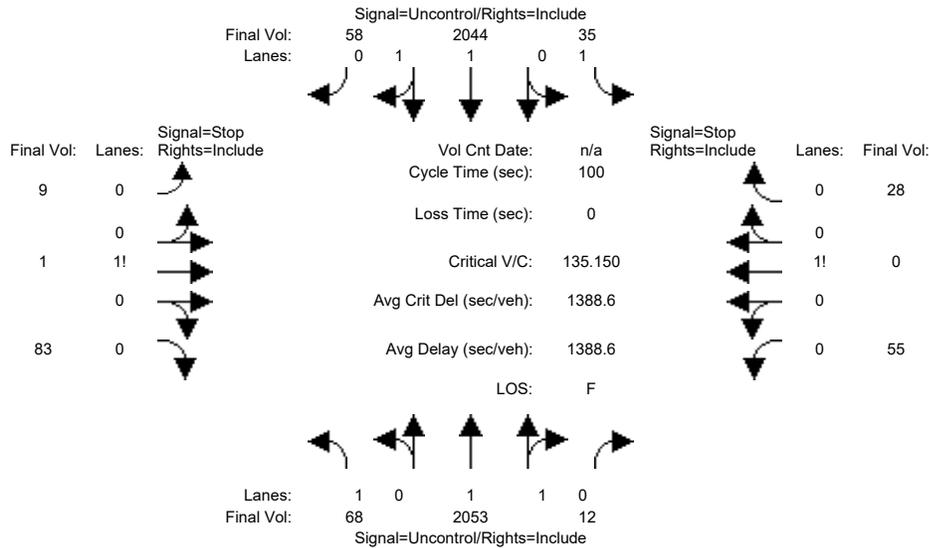
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Unsignalized (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #8: Saratoga Ave & McFarland Ave



Street Name: Saratoga Avenue McFarland Avenue  
 Approach: North Bound South Bound East Bound West Bound  
 Movement: L - T - R L - T - R L - T - R L - T - R

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 31   | 2048 | 12   | 35   | 2036 | 46   | 3    | 1    | 63   | 55   | 0    | 28   |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 31   | 2048 | 12   | 35   | 2036 | 46   | 3    | 1    | 63   | 55   | 0    | 28   |
| Added Vol:     | 37   | 5    | 0    | 0    | 8    | 12   | 6    | 0    | 20   | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 68   | 2053 | 12   | 35   | 2044 | 58   | 9    | 1    | 83   | 55   | 0    | 28   |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 68   | 2053 | 12   | 35   | 2044 | 58   | 9    | 1    | 83   | 55   | 0    | 28   |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| FinalVolume:   | 68   | 2053 | 12   | 35   | 2044 | 58   | 9    | 1    | 83   | 55   | 0    | 28   |

| Critical Gap Module: |     |      |        |     |      |        |     |     |     |     |     |     |
|----------------------|-----|------|--------|-----|------|--------|-----|-----|-----|-----|-----|-----|
| Critical Gp:         | 4.1 | xxxx | xxxxxx | 4.1 | xxxx | xxxxxx | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| FollowUpTim:         | 2.2 | xxxx | xxxxxx | 2.2 | xxxx | xxxxxx | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |

| Capacity Module: |      |      |        |      |      |        |      |      |      |      |      |      |
|------------------|------|------|--------|------|------|--------|------|------|------|------|------|------|
| Cnflct Vol:      | 2102 | xxxx | xxxxxx | 2065 | xxxx | xxxxxx | 3306 | 4344 | 1051 | 3288 | 4367 | 1033 |
| Potent Cap.:     | 265  | xxxx | xxxxxx | 274  | xxxx | xxxxxx | 4    | 2    | 227  | 4    | 2    | 233  |
| Move Cap.:       | 265  | xxxx | xxxxxx | 274  | xxxx | xxxxxx | 2    | 1    | 227  | 0    | 1    | 233  |
| Volume/Cap:      | 0.26 | xxxx | xxxx   | 0.13 | xxxx | xxxx   | 4.00 | 0.90 | 0.37 | xxxx | 0.00 | 0.12 |

| Level Of Service Module: |               |               |               |               |               |               |               |               |               |               |               |               |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2Way95thQ:               | 1.0           | xxxx          | xxxxxx        | 0.4           | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        |
| Control Del:             | 23.2          | xxxx          | xxxxxx        | 20.0          | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| LOS by Move:             | C             | *             | *             | C             | *             | *             | *             | *             | *             | *             | *             | *             |
| Movement:                | LT - LTR - RT |
| Shared Cap.:             | xxxx          | xxxx          | xxxxxx        | xxxx          | xxxx          | xxxxxx        | xxxx          | 18            | xxxxxx        | xxxx          | 1             | xxxxxx        |
| SharedQueue:             | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 12.3          | xxxxxx        | xxxxxx        | 12.7          | xxxxxx        |
| Shrd ConDel:             | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        | xxxxxx        | 2351          | xxxxxx        | xxxxxx        | xxxx          | xxxxxx        |
| Shared LOS:              | *             | *             | *             | *             | *             | *             | *             | F             | *             | *             | F             | *             |
| ApproachDel:             | xxxxxxx       |               |               | xxxxxxx       |               |               | 2351.3        |               | xxxxxxx       |               |               |               |
| ApproachLOS:             | *             |               |               | *             |               |               | F             |               | *             |               |               | F             |

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*  
 Intersection #8 Saratoga Ave & McFarland Ave  
 \*\*\*\*\*  
 Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 1 0    | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol: | 68 2053 12   | 35 2044 58   | 9 1 83     | 55 0 28    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 2351.3     | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=60.7]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=93]  
FAIL - Approach volume less than 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=4446]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]  
Signal Warrant Rule #1: [vehicle-hours=1653.5]  
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
Signal Warrant Rule #2: [approach volume=83]  
FAIL - Approach volume less than 100 for one lane approach.  
Signal Warrant Rule #3: [approach count=4][total volume=4446]  
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER  
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Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
Intersection #8 Saratoga Ave & McFarland Ave  
\*\*\*\*\*  
Future Volume Alternative: Peak Hour Warrant NOT Met

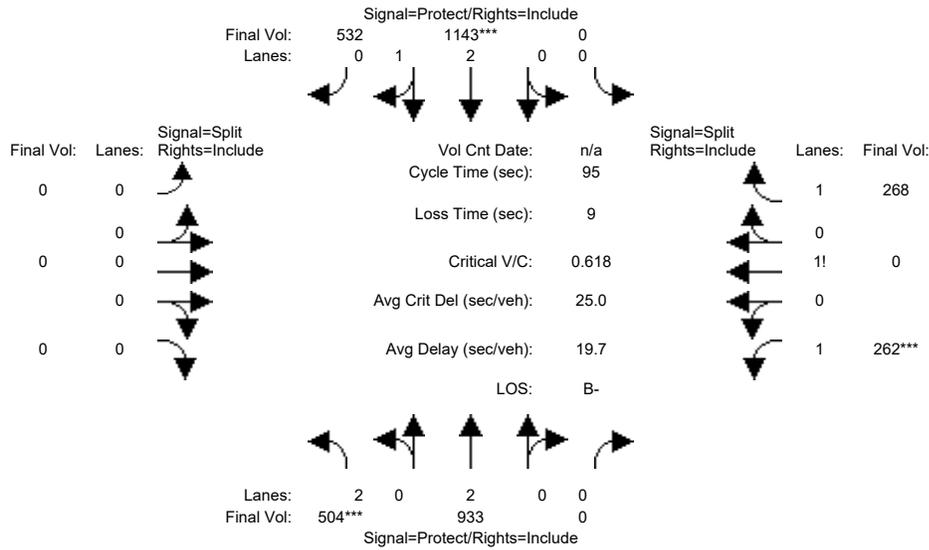
| Approach:                        | North Bound                     | South Bound  | East Bound | West Bound |
|----------------------------------|---------------------------------|--------------|------------|------------|
| Movement:                        | L - T - R                       | L - T - R    | L - T - R  | L - T - R  |
| Control:                         | Uncontrolled                    | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:                           | 1 0 1 1 0                       | 1 0 1 1 0    | 0 0 1! 0 0 | 0 0 1! 0 0 |
| Initial Vol:                     | 68 2053 12                      | 35 2044 58   | 9 1 83     | 55 0 28    |
| Major Street Volume:             | 4270                            |              |            |            |
| Minor Approach Volume:           | 93                              |              |            |            |
| Minor Approach Volume Threshold: | -215 [less than minimum of 100] |              |            |            |

SIGNAL WARRANT DISCLAIMER  
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 500  | 918  | 0    | 0    | 1109 | 517  | 0    | 0    | 0    | 261  | 0    | 266  |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 500  | 918  | 0    | 0    | 1109 | 517  | 0    | 0    | 0    | 261  | 0    | 266  |
| Added Vol:     | 4    | 15   | 0    | 0    | 34   | 15   | 0    | 0    | 0    | 1    | 0    | 2    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 504  | 933  | 0    | 0    | 1143 | 532  | 0    | 0    | 0    | 262  | 0    | 268  |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 504  | 933  | 0    | 0    | 1143 | 532  | 0    | 0    | 0    | 262  | 0    | 268  |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 504  | 933  | 0    | 0    | 1143 | 532  | 0    | 0    | 0    | 262  | 0    | 268  |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 504  | 933  | 0    | 0    | 1143 | 532  | 0    | 0    | 0    | 262  | 0    | 268  |

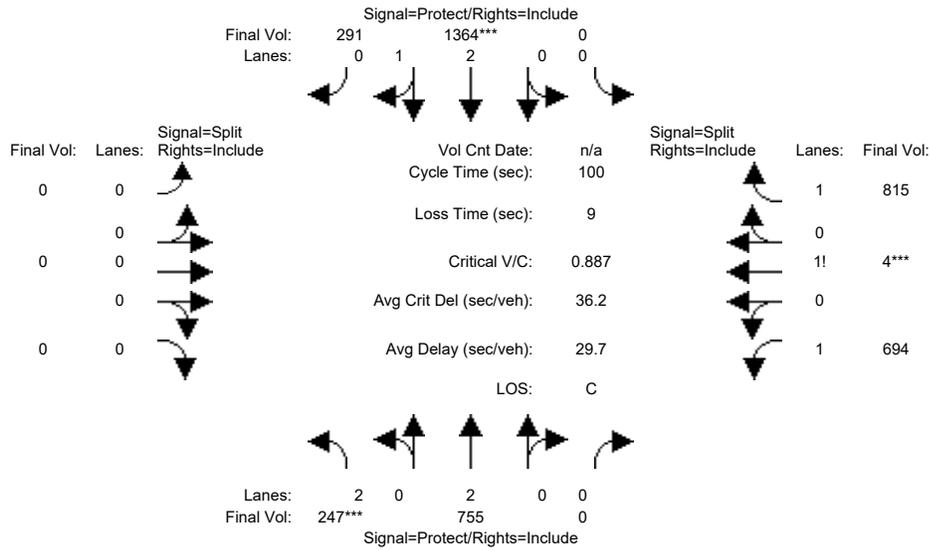
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 2.00 | 2.00 | 0.00 | 0.00 | 2.01 | 0.99 | 0.00 | 0.00 | 0.00 | 1.49 | 0.00 | 1.51 |
| Final Sat.:             | 3150 | 3800 | 0    | 0    | 3819 | 1778 | 0    | 0    | 0    | 2615 | 0    | 2635 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.16 | 0.25 | 0.00 | 0.00 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.10 |
| Crit Moves:               | ***  |      |      |      | **** |      |      |      |      | **** |      |      |
| Green Time:               | 24.5 | 70.4 | 0.0  | 0.0  | 45.9 | 45.9 | 0.0  | 0.0  | 0.0  | 15.6 | 0.0  | 15.6 |
| Volume/Cap:               | 0.62 | 0.33 | 0.00 | 0.00 | 0.62 | 0.62 | 0.00 | 0.00 | 0.00 | 0.61 | 0.00 | 0.62 |
| Uniform Del:              | 31.1 | 4.2  | 0.0  | 0.0  | 18.1 | 18.1 | 0.0  | 0.0  | 0.0  | 36.9 | 0.0  | 36.9 |
| IncrementDel:             | 1.5  | 0.1  | 0.0  | 0.0  | 0.4  | 0.4  | 0.0  | 0.0  | 0.0  | 1.3  | 0.0  | 1.4  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Delay/Veh:                | 32.6 | 4.3  | 0.0  | 0.0  | 18.6 | 18.6 | 0.0  | 0.0  | 0.0  | 38.2 | 0.0  | 38.3 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 32.6 | 4.3  | 0.0  | 0.0  | 18.6 | 18.6 | 0.0  | 0.0  | 0.0  | 38.2 | 0.0  | 38.3 |
| LOS by Move:              | C-   | A    | A    | A    | B-   | B-   | A    | A    | A    | D+   | A    | D+   |
| HCM2kAvgQ:                | 8    | 5    | 0    | 0    | 12   | 12   | 0    | 0    | 0    | 6    | 0    | 6    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #9: Saratoga Ave & SR 85 NB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Northbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 7               | 10  | 0   | 0           | 10  | 10  | 0                      | 0   | 0   | 10         | 10  | 10  |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 245  | 721  | 0    | 0    | 1342 | 284  | 0    | 0    | 0    | 691  | 4    | 807  |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 245  | 721  | 0    | 0    | 1342 | 284  | 0    | 0    | 0    | 691  | 4    | 807  |
| Added Vol:     | 2    | 34   | 0    | 0    | 22   | 7    | 0    | 0    | 0    | 3    | 0    | 8    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 247  | 755  | 0    | 0    | 1364 | 291  | 0    | 0    | 0    | 694  | 4    | 815  |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 247  | 755  | 0    | 0    | 1364 | 291  | 0    | 0    | 0    | 694  | 4    | 815  |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 247  | 755  | 0    | 0    | 1364 | 291  | 0    | 0    | 0    | 694  | 4    | 815  |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 247  | 755  | 0    | 0    | 1364 | 291  | 0    | 0    | 0    | 694  | 4    | 815  |

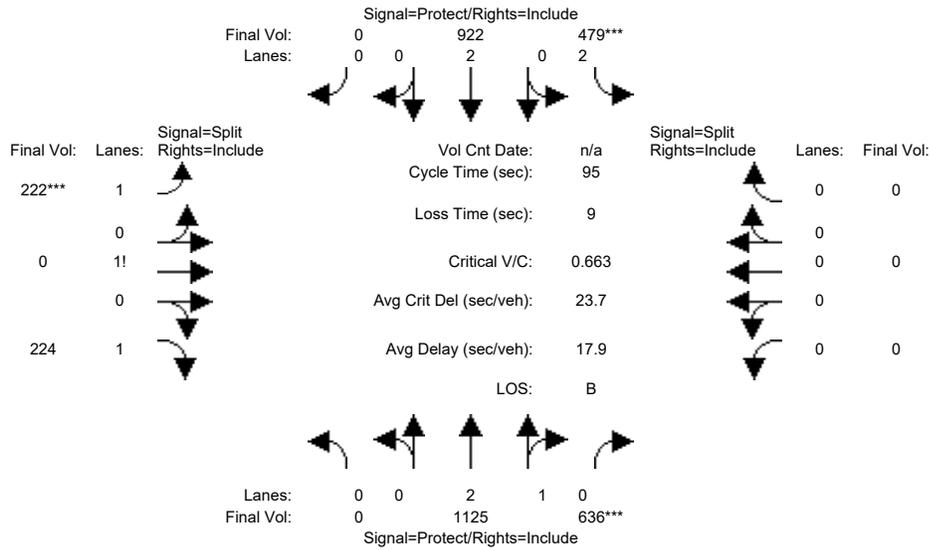
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.83 | 1.00 | 0.92 | 0.92 | 0.99 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 0.92 |
| Lanes:                  | 2.00 | 2.00 | 0.00 | 0.00 | 2.45 | 0.55 | 0.00 | 0.00 | 0.00 | 1.46 | 0.01 | 1.53 |
| Final Sat.:             | 3150 | 3800 | 0    | 0    | 4614 | 984  | 0    | 0    | 0    | 2551 | 9    | 2690 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.08 | 0.20 | 0.00 | 0.00 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.27 | 0.43 | 0.30 |
| Crit Moves:               | **** |      |      |      | **** |      |      |      |      | **** |      |      |
| Green Time:               | 8.8  | 42.2 | 0.0  | 0.0  | 33.3 | 33.3 | 0.0  | 0.0  | 0.0  | 48.8 | 48.8 | 48.8 |
| Volume/Cap:               | 0.89 | 0.47 | 0.00 | 0.00 | 0.89 | 0.89 | 0.00 | 0.00 | 0.00 | 0.56 | 0.89 | 0.62 |
| Uniform Del:              | 45.1 | 20.9 | 0.0  | 0.0  | 31.6 | 31.6 | 0.0  | 0.0  | 0.0  | 18.0 | 23.1 | 18.8 |
| IncrementDel:             | 27.2 | 0.2  | 0.0  | 0.0  | 5.6  | 5.6  | 0.0  | 0.0  | 0.0  | 0.3  | 6.1  | 0.5  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 72.3 | 21.1 | 0.0  | 0.0  | 37.2 | 37.2 | 0.0  | 0.0  | 0.0  | 18.2 | 29.2 | 19.3 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 72.3 | 21.1 | 0.0  | 0.0  | 37.2 | 37.2 | 0.0  | 0.0  | 0.0  | 18.2 | 29.2 | 19.3 |
| LOS by Move:              | E    | C+   | A    | A    | D+   | D+   | A    | A    | A    | B-   | C    | B-   |
| HCM2kAvgQ:                | 5    | 8    | 0    | 0    | 16   | 16   | 0    | 0    | 0    | 11   | 26   | 13   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #10: Saratoga Ave & SR 85 SB Ramps



| Street Name: | Saratoga Avenue |     |     |             |     |     | SR 85 Southbound Ramps |     |     |            |     |     |
|--------------|-----------------|-----|-----|-------------|-----|-----|------------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound     |     |     | South Bound |     |     | East Bound             |     |     | West Bound |     |     |
| Movement:    | L               | T   | R   | L           | T   | R   | L                      | T   | R   | L          | T   | R   |
| Min. Green:  | 0               | 10  | 10  | 7           | 10  | 0   | 10                     | 10  | 10  | 0          | 0   | 0   |
| Y+R:         | 4.0             | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0                    | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 0    | 1109 | 633  | 469  | 897  | 0    | 219  | 0    | 223  | 0    | 0    | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 0    | 1109 | 633  | 469  | 897  | 0    | 219  | 0    | 223  | 0    | 0    | 0    |
| Added Vol:     | 0    | 16   | 3    | 10   | 25   | 0    | 3    | 0    | 1    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 0    | 1125 | 636  | 479  | 922  | 0    | 222  | 0    | 224  | 0    | 0    | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 0    | 1125 | 636  | 479  | 922  | 0    | 222  | 0    | 224  | 0    | 0    | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 0    | 1125 | 636  | 479  | 922  | 0    | 222  | 0    | 224  | 0    | 0    | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 0    | 1125 | 636  | 479  | 922  | 0    | 222  | 0    | 224  | 0    | 0    | 0    |

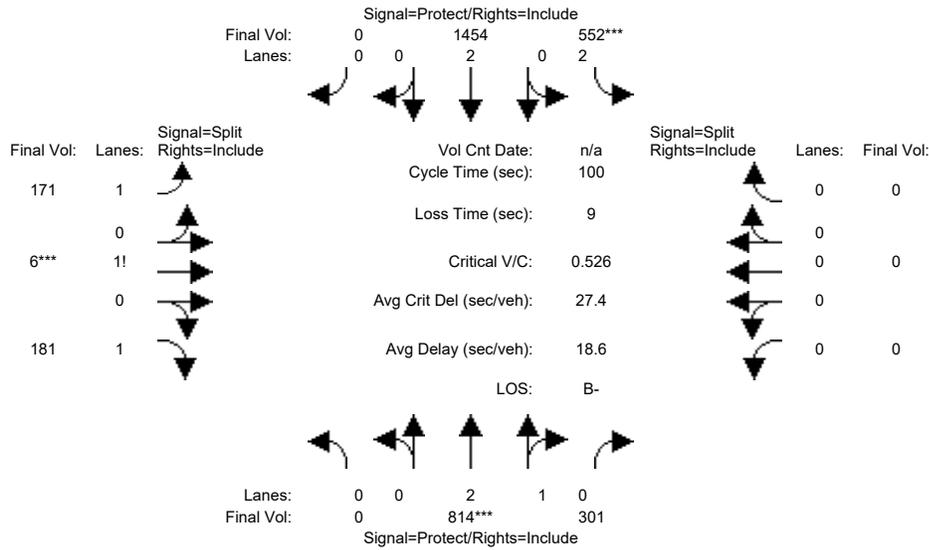
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 0.00 | 2.00 | 1.00 | 2.00 | 2.00 | 0.00 | 1.50 | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 |
| Final Sat.:             | 0    | 3800 | 1750 | 3150 | 3800 | 0    | 2621 | 0    | 2629 | 0    | 0    | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.00 | 0.30 | 0.36 | 0.15 | 0.24 | 0.00 | 0.08 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| Crit Moves:               |      |      | **** | **** |      |      | **** |      |      |      |      |      |
| Green Time:               | 0.0  | 52.0 | 52.0 | 21.8 | 73.8 | 0.0  | 12.2 | 0.0  | 12.2 | 0.0  | 0.0  | 0.0  |
| Volume/Cap:               | 0.00 | 0.54 | 0.66 | 0.66 | 0.31 | 0.00 | 0.66 | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 |
| Uniform Del:              | 0.0  | 13.8 | 15.3 | 33.3 | 3.1  | 0.0  | 39.4 | 0.0  | 39.4 | 0.0  | 0.0  | 0.0  |
| IncrementDel:             | 0.0  | 0.2  | 0.6  | 2.3  | 0.1  | 0.0  | 2.4  | 0.0  | 2.5  | 0.0  | 0.0  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Delay/Veh:                | 0.0  | 14.0 | 15.9 | 35.6 | 3.2  | 0.0  | 41.8 | 0.0  | 41.9 | 0.0  | 0.0  | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0  | 14.0 | 15.9 | 35.6 | 3.2  | 0.0  | 41.8 | 0.0  | 41.9 | 0.0  | 0.0  | 0.0  |
| LOS by Move:              | A    | B    | B    | D+   | A    | A    | D    | A    | D    | A    | A    | A    |
| HCM2kAvgQ:                | 0    | 11   | 15   | 8    | 4    | 0    | 6    | 0    | 6    | 0    | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #10: Saratoga Ave & SR 85 SB Ramps

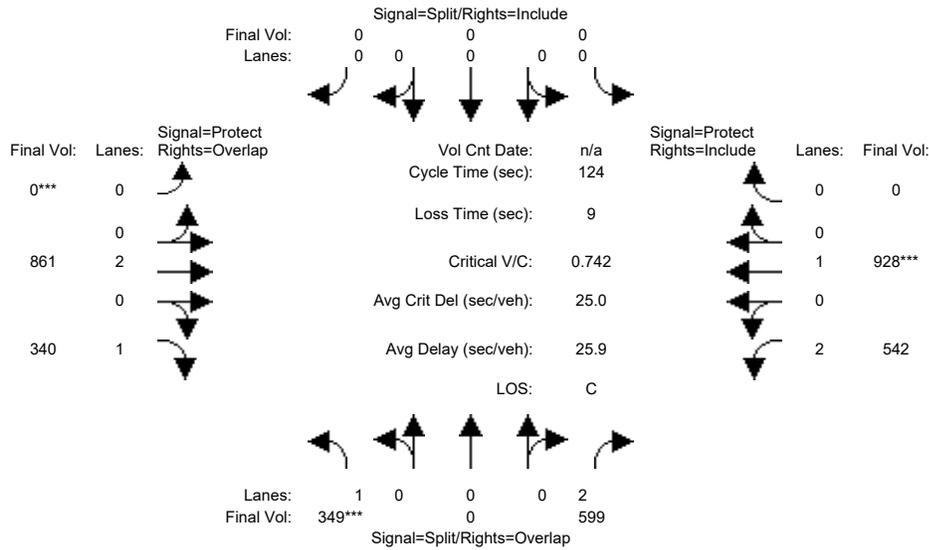


| Street Name:              | Saratoga Avenue |      |      |             |      |      | SR 85 Southbound Ramps |      |      |            |      |      |
|---------------------------|-----------------|------|------|-------------|------|------|------------------------|------|------|------------|------|------|
| Approach:                 | North Bound     |      |      | South Bound |      |      | East Bound             |      |      | West Bound |      |      |
| Movement:                 | L               | T    | R    | L           | T    | R    | L                      | T    | R    | L          | T    | R    |
| Min. Green:               | 0               | 10   | 10   | 7           | 10   | 0    | 10                     | 10   | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0                    | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Base Vol:                 | 0               | 790  | 299  | 548         | 1434 | 0    | 159                    | 6    | 177  | 0          | 0    | 0    |
| Growth Adj:               | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 0               | 790  | 299  | 548         | 1434 | 0    | 159                    | 6    | 177  | 0          | 0    | 0    |
| Added Vol:                | 0               | 24   | 2    | 4           | 20   | 0    | 12                     | 0    | 4    | 0          | 0    | 0    |
| PasserByVol:              | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 0               | 814  | 301  | 552         | 1454 | 0    | 171                    | 6    | 181  | 0          | 0    | 0    |
| User Adj:                 | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 0               | 814  | 301  | 552         | 1454 | 0    | 171                    | 6    | 181  | 0          | 0    | 0    |
| Reduct Vol:               | 0               | 0    | 0    | 0           | 0    | 0    | 0                      | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 0               | 814  | 301  | 552         | 1454 | 0    | 171                    | 6    | 181  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 0               | 814  | 301  | 552         | 1454 | 0    | 171                    | 6    | 181  | 0          | 0    | 0    |
| Saturation Flow Module:   |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Sat/Lane:                 | 1900            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900                   | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92            | 1.00 | 0.95 | 0.83        | 1.00 | 0.92 | 0.92                   | 0.92 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 0.00            | 2.16 | 0.84 | 2.00        | 2.00 | 0.00 | 1.47                   | 0.03 | 1.50 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 0               | 4086 | 1511 | 3150        | 3800 | 0    | 2572                   | 58   | 2620 | 0          | 0    | 0    |
| Capacity Analysis Module: |                 |      |      |             |      |      |                        |      |      |            |      |      |
| Vol/Sat:                  | 0.00            | 0.20 | 0.20 | 0.18        | 0.38 | 0.00 | 0.07                   | 0.10 | 0.07 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ****            |      |      | ****        |      |      | ****                   |      |      | ****       |      |      |
| Green Time:               | 0.0             | 37.9 | 37.9 | 33.3        | 71.2 | 0.0  | 19.8                   | 19.8 | 19.8 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.00            | 0.53 | 0.53 | 0.53        | 0.54 | 0.00 | 0.34                   | 0.53 | 0.35 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 0.0             | 24.1 | 24.1 | 26.9        | 6.7  | 0.0  | 34.5                   | 35.9 | 34.6 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 0.0             | 0.2  | 0.2  | 0.5         | 0.2  | 0.0  | 0.2                    | 0.8  | 0.2  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0                    | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 0.00            | 1.00 | 1.00 | 1.00        | 1.00 | 0.00 | 1.00                   | 1.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 0.0             | 24.3 | 24.3 | 27.4        | 6.9  | 0.0  | 34.7                   | 36.7 | 34.8 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00                   | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0             | 24.3 | 24.3 | 27.4        | 6.9  | 0.0  | 34.7                   | 36.7 | 34.8 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | A               | C    | C    | C           | A    | A    | C-                     | D+   | C-   | A          | A    | A    |
| HCM2kAvgQ:                | 0               | 9    | 9    | 8           | 10   | 0    | 4                      | 6    | 4    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #11: Fruitvale Ave & Saratoga Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Saratoga Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|-----------------|-----|-----|------------|-----|-----|
|              | North Bound      |     |     | South Bound |     |     | East Bound      |     |     | West Bound |     |     |
| Approach:    |                  |     |     |             |     |     |                 |     |     |            |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L               | T   | R   | L          | T   | R   |
| Min. Green:  | 10               | 0   | 10  | 0           | 0   | 0   | 0               | 10  | 10  | 7          | 10  | 0   |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0             | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 347  | 0    | 579  | 0    | 0    | 0    | 0    | 860  | 339  | 531  | 923  | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 347  | 0    | 579  | 0    | 0    | 0    | 0    | 860  | 339  | 531  | 923  | 0    |
| Added Vol:     | 2    | 0    | 20   | 0    | 0    | 0    | 0    | 1    | 1    | 11   | 5    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 349  | 0    | 599  | 0    | 0    | 0    | 0    | 861  | 340  | 542  | 928  | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 349  | 0    | 599  | 0    | 0    | 0    | 0    | 861  | 340  | 542  | 928  | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 349  | 0    | 599  | 0    | 0    | 0    | 0    | 861  | 340  | 542  | 928  | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 349  | 0    | 599  | 0    | 0    | 0    | 0    | 861  | 340  | 542  | 928  | 0    |

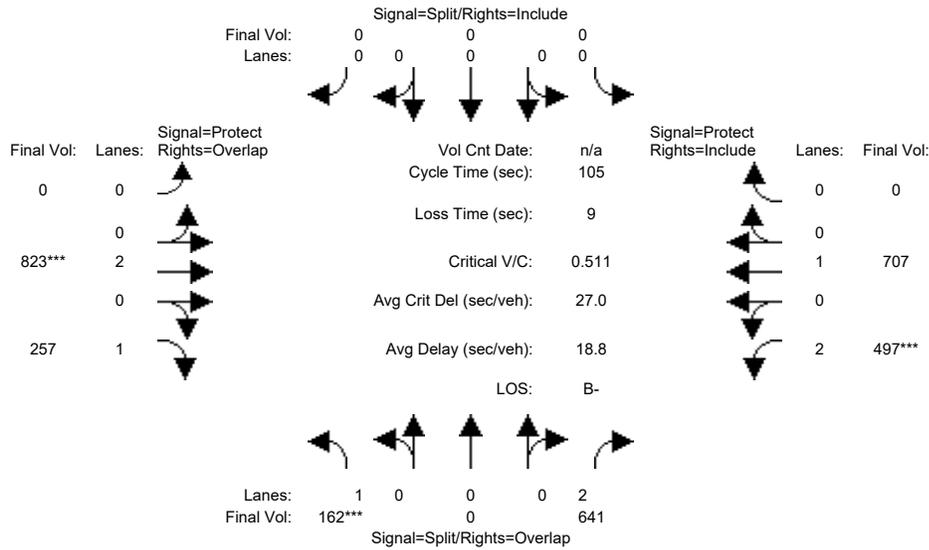
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.83 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 1.00 | 2.00 | 1.00 | 0.00 |
| Final Sat.:             | 1750 | 0    | 3150 | 0    | 0    | 0    | 0    | 3800 | 1750 | 3150 | 1900 | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.20 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.19 | 0.17 | 0.49 | 0.00 |
| Crit Moves:               | ***  |      |      |      |      |      | ***  |      |      | ***  |      |      |
| Green Time:               | 33.3 | 0.0  | 68.6 | 0.0  | 0.0  | 0.0  | 0.0  | 46.4 | 79.8 | 35.2 | 81.7 | 0.0  |
| Volume/Cap:               | 0.74 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 0.30 | 0.61 | 0.74 | 0.00 |
| Uniform Del:              | 41.4 | 0.0  | 15.3 | 0.0  | 0.0  | 0.0  | 0.0  | 31.4 | 9.8  | 38.4 | 14.1 | 0.0  |
| IncrementDel:             | 6.2  | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.8  | 0.2  | 1.2  | 2.4  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Delay/Veh:                | 47.6 | 0.0  | 15.4 | 0.0  | 0.0  | 0.0  | 0.0  | 32.1 | 9.9  | 39.6 | 16.6 | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 47.6 | 0.0  | 15.4 | 0.0  | 0.0  | 0.0  | 0.0  | 32.1 | 9.9  | 39.6 | 16.6 | 0.0  |
| LOS by Move:              | D    | A    | B    | A    | A    | A    | A    | C-   | A    | D    | B    | A    |
| HCM2kAvgQ:                | 13   | 0    | 7    | 0    | 0    | 0    | 0    | 13   | 6    | 11   | 24   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #11: Fruitvale Ave & Saratoga Ave

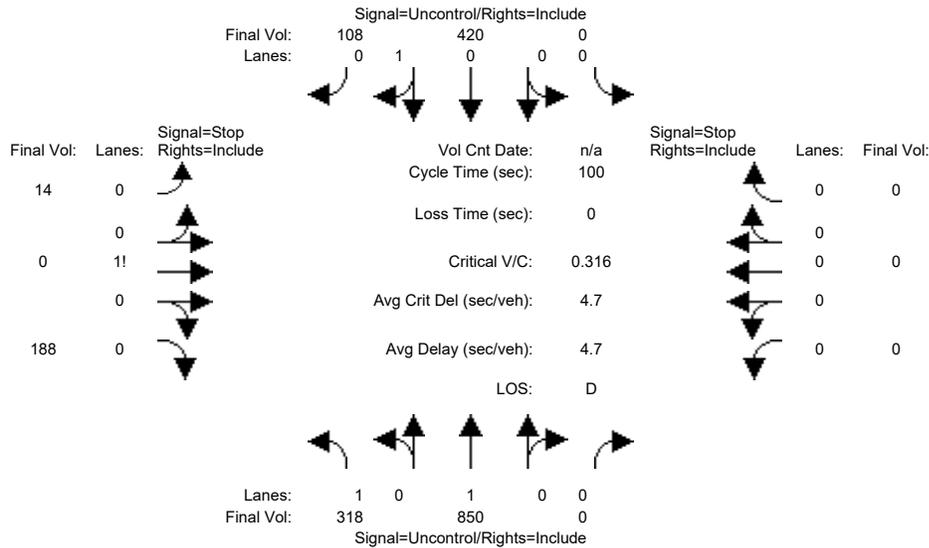


| Street Name:              | Fruitvale Avenue |      |      |             |      |      | Saratoga Avenue |      |      |            |      |      |
|---------------------------|------------------|------|------|-------------|------|------|-----------------|------|------|------------|------|------|
| Approach:                 | North Bound      |      |      | South Bound |      |      | East Bound      |      |      | West Bound |      |      |
| Movement:                 | L                | T    | R    | L           | T    | R    | L               | T    | R    | L          | T    | R    |
| Min. Green:               | 10               | 0    | 10   | 0           | 0    | 0    | 0               | 10   | 10   | 7          | 10   | 0    |
| Y+R:                      | 4.0              | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0             | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Base Vol:                 | 161              | 0    | 625  | 0           | 0    | 0    | 0               | 819  | 255  | 474        | 705  | 0    |
| Growth Adj:               | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 161              | 0    | 625  | 0           | 0    | 0    | 0               | 819  | 255  | 474        | 705  | 0    |
| Added Vol:                | 1                | 0    | 16   | 0           | 0    | 0    | 0               | 4    | 2    | 23         | 2    | 0    |
| PasserByVol:              | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 162              | 0    | 641  | 0           | 0    | 0    | 0               | 823  | 257  | 497        | 707  | 0    |
| User Adj:                 | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 162              | 0    | 641  | 0           | 0    | 0    | 0               | 823  | 257  | 497        | 707  | 0    |
| Reduct Vol:               | 0                | 0    | 0    | 0           | 0    | 0    | 0               | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 162              | 0    | 641  | 0           | 0    | 0    | 0               | 823  | 257  | 497        | 707  | 0    |
| PCE Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:              | 162              | 0    | 641  | 0           | 0    | 0    | 0               | 823  | 257  | 497        | 707  | 0    |
| Saturation Flow Module:   |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Sat/Lane:                 | 1900             | 1900 | 1900 | 1900        | 1900 | 1900 | 1900            | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92             | 1.00 | 0.83 | 0.92        | 1.00 | 0.92 | 0.92            | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 |
| Lanes:                    | 1.00             | 0.00 | 2.00 | 0.00        | 0.00 | 0.00 | 0.00            | 2.00 | 1.00 | 2.00       | 1.00 | 0.00 |
| Final Sat.:               | 1750             | 0    | 3150 | 0           | 0    | 0    | 0               | 3800 | 1750 | 3150       | 1900 | 0    |
| Capacity Analysis Module: |                  |      |      |             |      |      |                 |      |      |            |      |      |
| Vol/Sat:                  | 0.09             | 0.00 | 0.20 | 0.00        | 0.00 | 0.00 | 0.00            | 0.22 | 0.15 | 0.16       | 0.37 | 0.00 |
| Crit Moves:               | ***              |      |      |             |      |      | ***             |      |      | ***        |      |      |
| Green Time:               | 19.0             | 0.0  | 51.5 | 0.0         | 0.0  | 0.0  | 0.0             | 44.5 | 63.6 | 32.4       | 77.0 | 0.0  |
| Volume/Cap:               | 0.51             | 0.00 | 0.42 | 0.00        | 0.00 | 0.00 | 0.00            | 0.51 | 0.24 | 0.51       | 0.51 | 0.00 |
| Uniform Del:              | 38.8             | 0.0  | 17.1 | 0.0         | 0.0  | 0.0  | 0.0             | 22.2 | 9.6  | 29.8       | 6.0  | 0.0  |
| IncrementDel:             | 1.4              | 0.0  | 0.2  | 0.0         | 0.0  | 0.0  | 0.0             | 0.3  | 0.1  | 0.5        | 0.3  | 0.0  |
| InitQueueDel:             | 0.0              | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0             | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00             | 0.00 | 1.00 | 0.00        | 0.00 | 0.00 | 0.00            | 1.00 | 1.00 | 1.00       | 1.00 | 0.00 |
| Delay/Veh:                | 40.2             | 0.0  | 17.3 | 0.0         | 0.0  | 0.0  | 0.0             | 22.5 | 9.7  | 30.2       | 6.3  | 0.0  |
| User DelAdj:              | 1.00             | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00            | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 40.2             | 0.0  | 17.3 | 0.0         | 0.0  | 0.0  | 0.0             | 22.5 | 9.7  | 30.2       | 6.3  | 0.0  |
| LOS by Move:              | D                | A    | B    | A           | A    | A    | A               | C+   | A    | C          | A    | A    |
| HCM2kAvgQ:                | 5                | 0    | 8    | 0           | 0    | 0    | 0               | 10   | 4    | 8          | 10   | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative + Project AM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and rows for Volume Module (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume).

Table for Critical Gap Module with 12 columns and 2 rows (Critical Gp, FollowUpTim).

Table for Capacity Module with 12 columns and 4 rows (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.).

Table for Level Of Service Module with 12 columns and 10 rows (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS).

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant NOT Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 318 850 0    | 0 420 108    | 14 0 188   | 0 0 0 0    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 28.2       | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=1.6]  
 FAIL - Vehicle-hours less than 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=202]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=1898]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 318 850 0    | 0 420 108    | 14 0 188   | 0 0 0 0    |

Major Street Volume: 1696  
 Minor Approach Volume: 202  
 Minor Approach Volume Threshold: 103

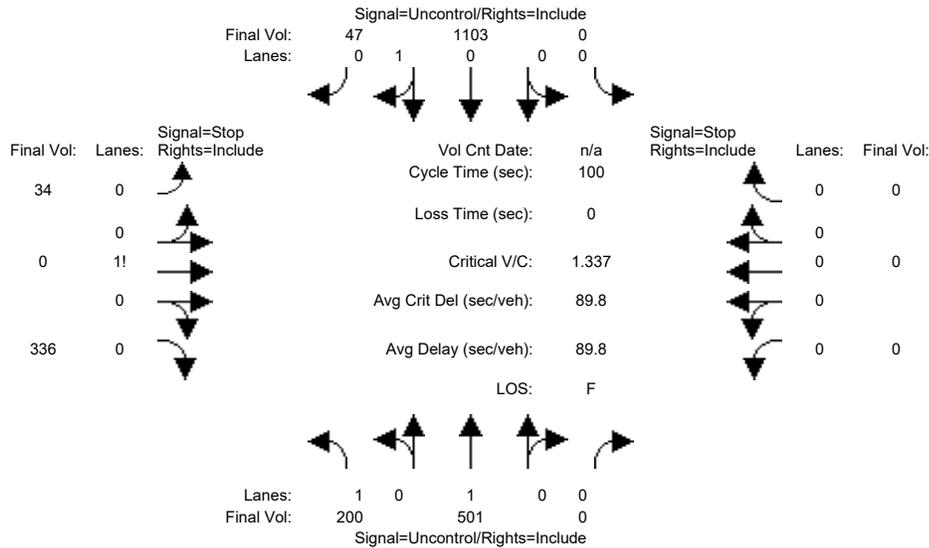
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative + Project PM

Intersection #12: Quito Rd & Cox Ave



Street Name: Quito Road Cox Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with 12 columns representing movements and 11 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Table with 12 columns representing movements and 2 rows of critical gap and follow-up time data.

Table with 12 columns representing movements and 4 rows of capacity data including Conflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with 12 columns representing movements and 10 rows of level of service data including 2Way95thQ, Control Del, LOS by Move, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*
Intersection #12 Quito Rd & Cox Ave
\*\*\*\*\*
Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 200 501 0    | 0 1103 47    | 34 0 336   | 0 0 0 0    |
| ApproachDel: | xxxxxxx      | xxxxxxx      | 531.8      | xxxxxxx    |

Approach[eastbound][lanes=1][control=Stop Sign]  
 Signal Warrant Rule #1: [vehicle-hours=54.7]  
 SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.  
 Signal Warrant Rule #2: [approach volume=370]  
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.  
 Signal Warrant Rule #3: [approach count=3][total volume=2221]  
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

\*\*\*\*\*  
 Intersection #12 Quito Rd & Cox Ave  
 \*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant Met

| Approach:    | North Bound  | South Bound  | East Bound | West Bound |
|--------------|--------------|--------------|------------|------------|
| Movement:    | L - T - R    | L - T - R    | L - T - R  | L - T - R  |
| Control:     | Uncontrolled | Uncontrolled | Stop Sign  | Stop Sign  |
| Lanes:       | 1 0 1 0 0    | 0 0 0 1 0    | 0 0 1! 0 0 | 0 0 0 0 0  |
| Initial Vol: | 200 501 0    | 0 1103 47    | 34 0 336   | 0 0 0 0    |

Major Street Volume: 1851  
 Minor Approach Volume: 370  
 Minor Approach Volume Threshold: 73 [less than minimum of 100]

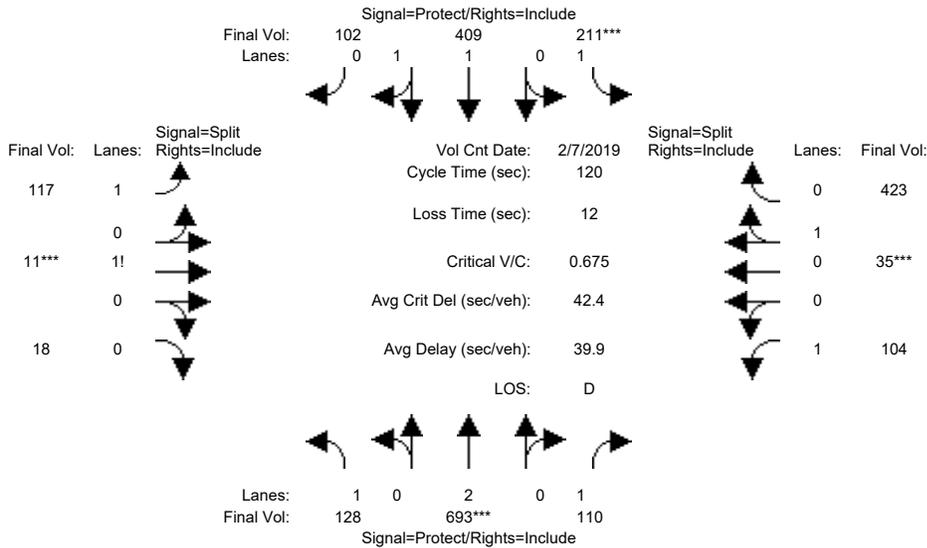
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #13: Fruitvale Ave & Allendale Ave



| Street Name: | Fruitvale Avenue |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|------------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
| Approach:    | North Bound      |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Movement:    | L                | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7                | 10  | 10  | 7           | 10  | 10  | 10               | 10  | 10  | 10         | 10  | 10  |
| Y+R:         | 4.0              | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: | >>   | Count | Date: | 7 Feb 2019 | <<   | 7:30 AM - 8:30 AM |      |      |      |      |      |      |
|----------------|------|-------|-------|------------|------|-------------------|------|------|------|------|------|------|
| Base Vol:      | 128  | 672   | 110   | 211        | 397  | 102               | 117  | 11   | 18   | 104  | 35   | 422  |
| Growth Adj:    | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 128  | 672   | 110   | 211        | 397  | 102               | 117  | 11   | 18   | 104  | 35   | 422  |
| Added Vol:     | 0    | 21    | 0     | 0          | 12   | 0                 | 0    | 0    | 0    | 0    | 0    | 1    |
| PasserByVol:   | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 128  | 693   | 110   | 211        | 409  | 102               | 117  | 11   | 18   | 104  | 35   | 423  |
| User Adj:      | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 128  | 693   | 110   | 211        | 409  | 102               | 117  | 11   | 18   | 104  | 35   | 423  |
| Reduct Vol:    | 0    | 0     | 0     | 0          | 0    | 0                 | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 128  | 693   | 110   | 211        | 409  | 102               | 117  | 11   | 18   | 104  | 35   | 423  |
| PCE Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00  | 1.00  | 1.00       | 1.00 | 1.00              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 128  | 693   | 110   | 211        | 409  | 102               | 117  | 11   | 18   | 104  | 35   | 423  |

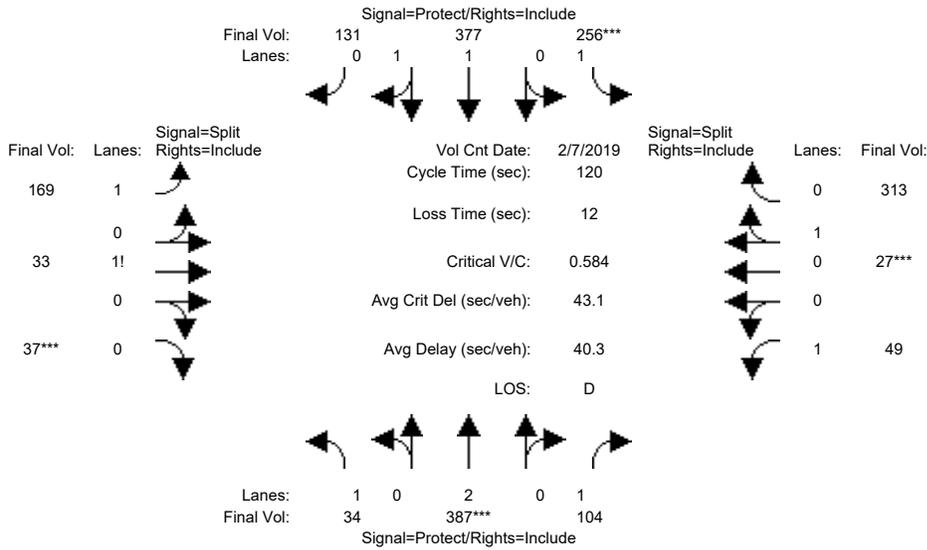
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.98 | 0.95 | 0.92 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 |
| Lanes:                  | 1.00 | 2.00 | 1.00 | 1.00 | 1.59 | 0.41 | 1.67 | 0.13 | 0.20 | 1.00 | 0.08 | 0.92 |
| Final Sat.:             | 1750 | 3800 | 1750 | 1750 | 2961 | 738  | 2920 | 220  | 360  | 1750 | 138  | 1662 |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.18 | 0.06 | 0.12 | 0.14 | 0.14 | 0.04 | 0.05 | 0.05 | 0.06 | 0.25 | 0.25 |
| Crit Moves:               | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:               | 18.4 | 32.1 | 32.1 | 21.2 | 34.8 | 34.8 | 10.0 | 10.0 | 10.0 | 44.7 | 44.7 | 44.7 |
| Volume/Cap:               | 0.48 | 0.68 | 0.24 | 0.68 | 0.48 | 0.48 | 0.48 | 0.60 | 0.60 | 0.16 | 0.68 | 0.68 |
| Uniform Del:              | 46.4 | 39.4 | 34.4 | 46.2 | 35.1 | 35.1 | 52.5 | 53.1 | 53.1 | 25.1 | 31.7 | 31.7 |
| IncrementDel:             | 1.3  | 1.9  | 0.3  | 6.1  | 0.3  | 0.3  | 1.2  | 4.1  | 4.1  | 0.1  | 2.9  | 2.9  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:                | 47.7 | 41.3 | 34.6 | 52.4 | 35.4 | 35.4 | 53.7 | 57.2 | 57.2 | 25.2 | 34.6 | 34.6 |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 47.7 | 41.3 | 34.6 | 52.4 | 35.4 | 35.4 | 53.7 | 57.2 | 57.2 | 25.2 | 34.6 | 34.6 |
| LOS by Move:              | D    | D    | C-   | D-   | D+   | D+   | D-   | E+   | E+   | C    | C-   | C-   |
| HCM2kAvgQ:                | 5    | 12   | 3    | 8    | 8    | 8    | 3    | 4    | 4    | 3    | 15   | 15   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #13: Fruitvale Ave & Allendale Ave

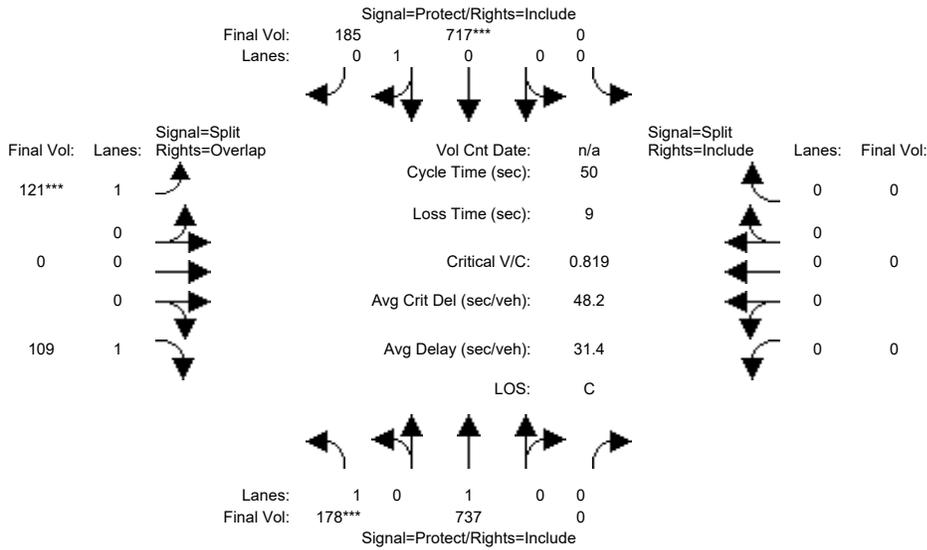


| Street Name:                  | Fruitvale Avenue                |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|-------------------------------|---------------------------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                     | North Bound                     |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                     | L                               | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:                   | 7                               | 10   | 10   | 7           | 10   | 10   | 10               | 10   | 10   | 10         | 10   | 10   |
| Y+R:                          | 4.0                             | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: | 7 Feb 2019 << 4:00 PM - 5:00 PM |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                     | 34                              | 370  | 104  | 255         | 353  | 131  | 169              | 33   | 37   | 49         | 27   | 312  |
| Growth Adj:                   | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                  | 34                              | 370  | 104  | 255         | 353  | 131  | 169              | 33   | 37   | 49         | 27   | 312  |
| Added Vol:                    | 0                               | 17   | 0    | 1           | 24   | 0    | 0                | 0    | 0    | 0          | 0    | 1    |
| PasserByVol:                  | 0                               | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                  | 34                              | 387  | 104  | 256         | 377  | 131  | 169              | 33   | 37   | 49         | 27   | 313  |
| User Adj:                     | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                      | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                   | 34                              | 387  | 104  | 256         | 377  | 131  | 169              | 33   | 37   | 49         | 27   | 313  |
| Reduct Vol:                   | 0                               | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                  | 34                              | 387  | 104  | 256         | 377  | 131  | 169              | 33   | 37   | 49         | 27   | 313  |
| PCE Adj:                      | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                      | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                 | 34                              | 387  | 104  | 256         | 377  | 131  | 169              | 33   | 37   | 49         | 27   | 313  |
| Saturation Flow Module:       |                                 |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                     | 1900                            | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                   | 0.92                            | 1.00 | 0.92 | 0.92        | 0.98 | 0.95 | 0.92             | 0.92 | 0.92 | 0.92       | 0.95 | 0.95 |
| Lanes:                        | 1.00                            | 2.00 | 1.00 | 1.00        | 1.47 | 0.53 | 1.55             | 0.21 | 0.24 | 1.00       | 0.08 | 0.92 |
| Final Sat.:                   | 1750                            | 3800 | 1750 | 1750        | 2745 | 954  | 2707             | 374  | 419  | 1750       | 143  | 1657 |
| Capacity Analysis Module:     |                                 |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                      | 0.02                            | 0.10 | 0.06 | 0.15        | 0.14 | 0.14 | 0.06             | 0.09 | 0.09 | 0.03       | 0.19 | 0.19 |
| Crit Moves:                   | ****                            |      |      | ****        |      |      | ****             |      |      | ****       |      |      |
| Green Time:                   | 15.2                            | 20.9 | 20.9 | 30.1        | 35.8 | 35.8 | 18.2             | 18.2 | 18.2 | 38.8       | 38.8 | 38.8 |
| Volume/Cap:                   | 0.15                            | 0.58 | 0.34 | 0.58        | 0.46 | 0.46 | 0.41             | 0.58 | 0.58 | 0.09       | 0.58 | 0.58 |
| Uniform Del:                  | 46.7                            | 45.5 | 43.5 | 39.5        | 34.2 | 34.2 | 46.1             | 47.4 | 47.4 | 28.2       | 33.8 | 33.8 |
| IncrementDel:                 | 0.3                             | 1.3  | 0.7  | 2.0         | 0.3  | 0.3  | 0.5              | 2.2  | 2.2  | 0.1        | 1.5  | 1.5  |
| InitQueueDel:                 | 0.0                             | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                    | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                    | 47.0                            | 46.9 | 44.1 | 41.5        | 34.5 | 34.5 | 46.6             | 49.6 | 49.6 | 28.3       | 35.4 | 35.4 |
| User DelAdj:                  | 1.00                            | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                   | 47.0                            | 46.9 | 44.1 | 41.5        | 34.5 | 34.5 | 46.6             | 49.6 | 49.6 | 28.3       | 35.4 | 35.4 |
| LOS by Move:                  | D                               | D    | D    | D           | C-   | C-   | D                | D    | D    | C          | D+   | D+   |
| HCM2kAvgQ:                    | 1                               | 7    | 4    | 9           | 8    | 8    | 4                | 6    | 6    | 1          | 11   | 11   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #14: Quito Rd & Allendale Ave

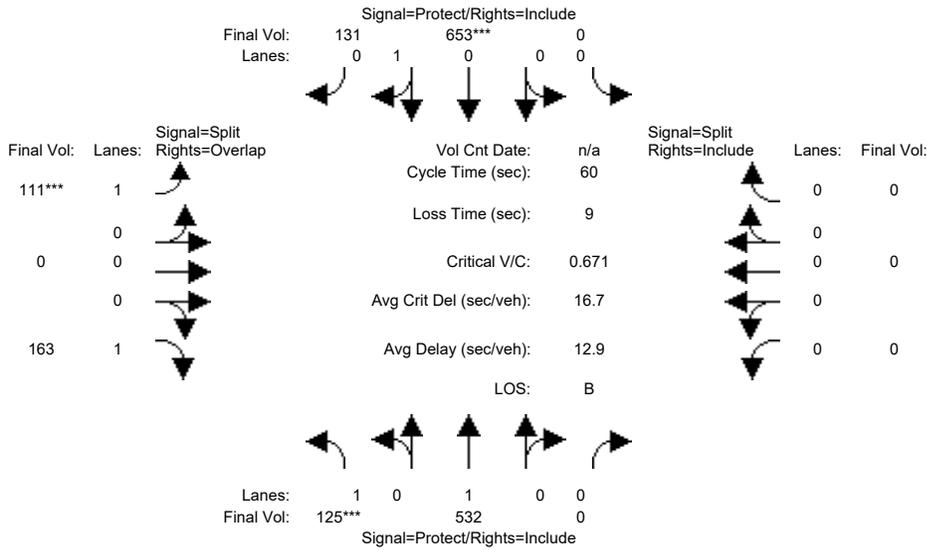


| Street Name:              | Quito Road  |      |      |             |      |      | Allendale Avenue |      |      |            |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------------|------|------|------------|------|------|
| Approach:                 | North Bound |      |      | South Bound |      |      | East Bound       |      |      | West Bound |      |      |
| Movement:                 | L           | T    | R    | L           | T    | R    | L                | T    | R    | L          | T    | R    |
| Min. Green:               | 7           | 10   | 0    | 0           | 10   | 10   | 10               | 0    | 10   | 0          | 0    | 0    |
| Y+R:                      | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0              | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module:            |             |      |      |             |      |      |                  |      |      |            |      |      |
| Base Vol:                 | 177         | 734  | 0    | 0           | 712  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| Growth Adj:               | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:              | 177         | 734  | 0    | 0           | 712  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| Added Vol:                | 1           | 3    | 0    | 0           | 5    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:              | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:              | 178         | 737  | 0    | 0           | 717  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| User Adj:                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:               | 178         | 737  | 0    | 0           | 717  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| Reduct Vol:               | 0           | 0    | 0    | 0           | 0    | 0    | 0                | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:              | 178         | 737  | 0    | 0           | 717  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| PCE Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                  | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:             | 178         | 737  | 0    | 0           | 717  | 185  | 121              | 0    | 109  | 0          | 0    | 0    |
| Saturation Flow Module:   |             |      |      |             |      |      |                  |      |      |            |      |      |
| Sat/Lane:                 | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900             | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:               | 0.92        | 1.00 | 0.92 | 0.92        | 0.95 | 0.95 | 0.92             | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                    | 1.00        | 1.00 | 0.00 | 0.00        | 0.79 | 0.21 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Final Sat.:               | 1750        | 1900 | 0    | 0           | 1431 | 369  | 1750             | 0    | 1750 | 0          | 0    | 0    |
| Capacity Analysis Module: |             |      |      |             |      |      |                  |      |      |            |      |      |
| Vol/Sat:                  | 0.10        | 0.39 | 0.00 | 0.00        | 0.50 | 0.50 | 0.07             | 0.00 | 0.06 | 0.00       | 0.00 | 0.00 |
| Crit Moves:               | ***         |      |      | ***         |      |      | ***              |      |      |            |      |      |
| Green Time:               | 7.0         | 31.0 | 0.0  | 0.0         | 24.0 | 24.0 | 10.0             | 0.0  | 17.0 | 0.0        | 0.0  | 0.0  |
| Volume/Cap:               | 0.73        | 0.63 | 0.00 | 0.00        | 1.04 | 1.04 | 0.35             | 0.00 | 0.18 | 0.00       | 0.00 | 0.00 |
| Uniform Del:              | 20.6        | 5.9  | 0.0  | 0.0         | 13.0 | 13.0 | 17.2             | 0.0  | 11.6 | 0.0        | 0.0  | 0.0  |
| IncrementDel:             | 10.4        | 1.1  | 0.0  | 0.0         | 42.7 | 42.7 | 0.6              | 0.0  | 0.1  | 0.0        | 0.0  | 0.0  |
| InitQueueDel:             | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0              | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                | 1.00        | 1.00 | 0.00 | 0.00        | 1.00 | 1.00 | 1.00             | 0.00 | 1.00 | 0.00       | 0.00 | 0.00 |
| Delay/Veh:                | 31.0        | 7.0  | 0.0  | 0.0         | 55.7 | 55.7 | 17.8             | 0.0  | 11.8 | 0.0        | 0.0  | 0.0  |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00             | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 31.0        | 7.0  | 0.0  | 0.0         | 55.7 | 55.7 | 17.8             | 0.0  | 11.8 | 0.0        | 0.0  | 0.0  |
| LOS by Move:              | C           | A    | A    | A           | E+   | E+   | B                | A    | B+   | A          | A    | A    |
| HCM2kAvgQ:                | 5           | 8    | 0    | 0           | 23   | 23   | 2                | 0    | 1    | 0          | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #14: Quito Rd & Allendale Ave



| Street Name: | Quito Road  |     |     |             |     |     | Allendale Avenue |     |     |            |     |     |
|--------------|-------------|-----|-----|-------------|-----|-----|------------------|-----|-----|------------|-----|-----|
|              | North Bound |     |     | South Bound |     |     | East Bound       |     |     | West Bound |     |     |
| Approach:    | L           | T   | R   | L           | T   | R   | L                | T   | R   | L          | T   | R   |
| Min. Green:  | 7           | 10  | 0   | 0           | 10  | 10  | 10               | 0   | 10  | 0          | 0   | 0   |
| Y+R:         | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0              | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

| Volume Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:      | 124  | 527  | 0    | 0    | 649  | 131  | 111  | 0    | 162  | 0    | 0    | 0    |
| Growth Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse:   | 124  | 527  | 0    | 0    | 649  | 131  | 111  | 0    | 162  | 0    | 0    | 0    |
| Added Vol:     | 1    | 5    | 0    | 0    | 4    | 0    | 0    | 0    | 1    | 0    | 0    | 0    |
| PasserByVol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut:   | 125  | 532  | 0    | 0    | 653  | 131  | 111  | 0    | 163  | 0    | 0    | 0    |
| User Adj:      | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:    | 125  | 532  | 0    | 0    | 653  | 131  | 111  | 0    | 163  | 0    | 0    | 0    |
| Reduct Vol:    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol:   | 125  | 532  | 0    | 0    | 653  | 131  | 111  | 0    | 163  | 0    | 0    | 0    |
| PCE Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Volume:  | 125  | 532  | 0    | 0    | 653  | 131  | 111  | 0    | 163  | 0    | 0    | 0    |

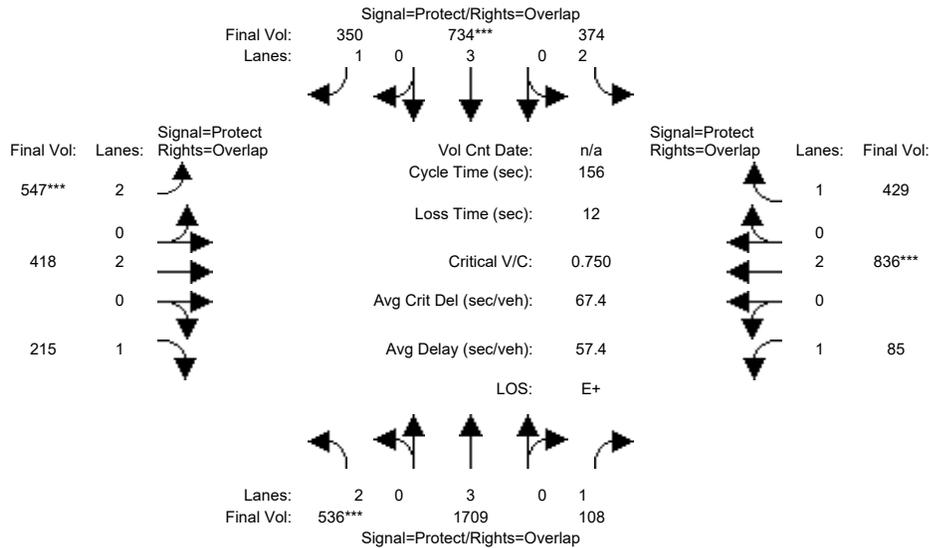
| Saturation Flow Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:               | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment:             | 0.92 | 1.00 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:                  | 1.00 | 1.00 | 0.00 | 0.00 | 0.83 | 0.17 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Final Sat.:             | 1750 | 1900 | 0    | 0    | 1499 | 301  | 1750 | 0    | 1750 | 0    | 0    | 0    |

| Capacity Analysis Module: |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:                  | 0.07 | 0.28 | 0.00 | 0.00 | 0.44 | 0.44 | 0.06 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| Crit Moves:               | ***  |      |      | **** |      |      | **** |      |      |      |      |      |
| Green Time:               | 7.0  | 41.0 | 0.0  | 0.0  | 34.0 | 34.0 | 10.0 | 0.0  | 17.0 | 0.0  | 0.0  | 0.0  |
| Volume/Cap:               | 0.61 | 0.41 | 0.00 | 0.00 | 0.77 | 0.77 | 0.38 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 |
| Uniform Del:              | 25.2 | 4.2  | 0.0  | 0.0  | 10.0 | 10.0 | 22.2 | 0.0  | 17.0 | 0.0  | 0.0  | 0.0  |
| IncrementDel:             | 5.4  | 0.2  | 0.0  | 0.0  | 3.6  | 3.6  | 0.8  | 0.0  | 0.4  | 0.0  | 0.0  | 0.0  |
| InitQueueDel:             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:                | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| Delay/Veh:                | 30.6 | 4.4  | 0.0  | 0.0  | 13.6 | 13.6 | 23.1 | 0.0  | 17.4 | 0.0  | 0.0  | 0.0  |
| User DelAdj:              | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:               | 30.6 | 4.4  | 0.0  | 0.0  | 13.6 | 13.6 | 23.1 | 0.0  | 17.4 | 0.0  | 0.0  | 0.0  |
| LOS by Move:              | C    | A    | A    | A    | B    | B    | C    | A    | B    | A    | A    | A    |
| HCM2kAvgQ:                | 4    | 5    | 0    | 0    | 12   | 12   | 2    | 0    | 2    | 0    | 0    | 0    |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD



| Approach:   | North Bound |     |     | South Bound |     |     | East Bound |     |     | West Bound |     |     |
|-------------|-------------|-----|-----|-------------|-----|-----|------------|-----|-----|------------|-----|-----|
|             | L           | T   | R   | L           | T   | R   | L          | T   | R   | L          | T   | R   |
| Min. Green: | 18          | 47  | 47  | 15          | 44  | 44  | 27         | 55  | 55  | 16         | 44  | 44  |
| Y+R:        | 4.0         | 4.0 | 4.0 | 4.0         | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 | 4.0        | 4.0 | 4.0 |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 536  | 1697 | 108  | 374  | 731  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 536  | 1697 | 108  | 374  | 731  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |
| Added Vol:   | 0    | 12   | 0    | 0    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 536  | 1709 | 108  | 374  | 734  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume:  | 536  | 1709 | 108  | 374  | 734  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 536  | 1709 | 108  | 374  | 734  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 536  | 1709 | 108  | 374  | 734  | 350  | 547  | 418  | 215  | 85   | 836  | 429  |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.83 | 1.00 | 0.92 | 0.92 | 1.00 | 0.92 |
| Lanes:      | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 3150 | 5700 | 1750 | 3150 | 5700 | 1750 | 3150 | 3800 | 1750 | 1750 | 3800 | 1750 |

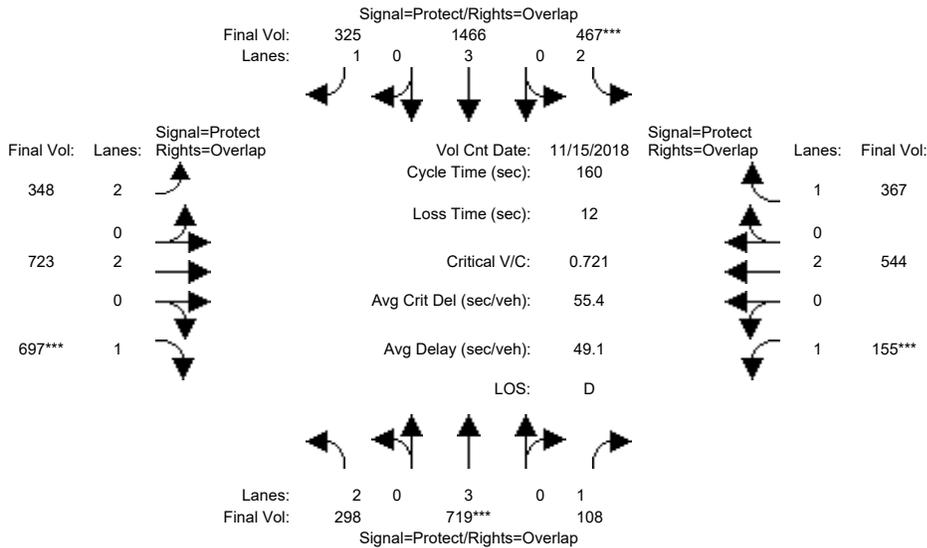
Capacity Analysis Module:

|               |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:      | 0.17 | 0.30 | 0.06 | 0.12 | 0.13 | 0.20 | 0.17 | 0.11 | 0.12 | 0.05 | 0.22 | 0.25 |
| Crit Moves:   | **** |      |      | **** |      |      | **** |      |      | **** |      |      |
| Green Time:   | 27.7 | 51.4 | 67.7 | 20.3 | 44.0 | 72.3 | 28.3 | 56.0 | 83.7 | 16.3 | 44.0 | 64.3 |
| Volume/Cap:   | 0.96 | 0.91 | 0.14 | 0.91 | 0.46 | 0.43 | 0.96 | 0.31 | 0.23 | 0.47 | 0.78 | 0.59 |
| Uniform Del:  | 63.6 | 50.0 | 26.6 | 67.0 | 46.1 | 28.1 | 63.3 | 36.0 | 19.1 | 65.8 | 51.5 | 35.7 |
| IncrementDel: | 27.7 | 7.0  | 0.1  | 24.6 | 0.2  | 0.4  | 27.3 | 0.1  | 0.1  | 1.9  | 3.7  | 1.4  |
| InitQueueDel: | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Delay Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh:    | 91.2 | 57.0 | 26.7 | 91.6 | 46.4 | 28.4 | 90.6 | 36.1 | 19.2 | 67.6 | 55.3 | 37.1 |
| User DelAdj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:   | 91.2 | 57.0 | 26.7 | 91.6 | 46.4 | 28.4 | 90.6 | 36.1 | 19.2 | 67.6 | 55.3 | 37.1 |
| LOS by Move:  | F    | E+   | C    | F    | D    | C    | F    | D+   | B-   | E    | E+   | D+   |
| HCM2kAvgQ:    | 17   | 28   | 3    | 14   | 10   | 12   | 16   | 7    | 5    | 5    | 20   | 17   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #5635: LAWRENCE EXPWY/PROSPECT RD

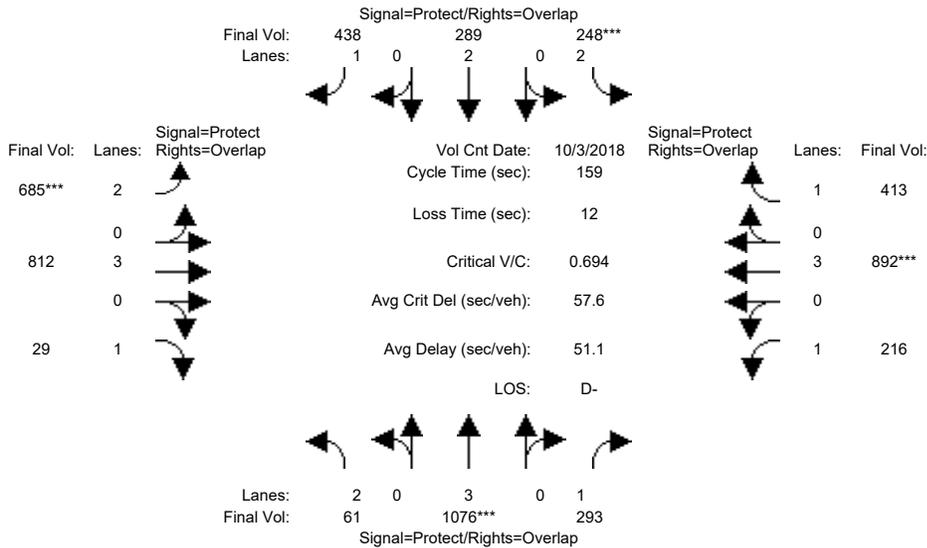


| Approach:                                                   | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
|                                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                                 | 18          | 41   | 41   | 30          | 53   | 53   | 29         | 46   | 46   | 20         | 37   | 37   |
| Y+R:                                                        | 6.3         | 6.2  | 6.2  | 6.3         | 6.2  | 6.2  | 5.3        | 5.8  | 5.8  | 5.3        | 6.0  | 6.0  |
| Volume Module: >> Count Date: 15 Nov 2018 << 4:30 - 5:30 PM |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                                   | 298         | 713  | 108  | 467         | 1455 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| Growth Adj:                                                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                | 298         | 713  | 108  | 467         | 1455 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| Added Vol:                                                  | 0           | 6    | 0    | 0           | 11   | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:                                                | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                | 298         | 719  | 108  | 467         | 1466 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| User Adj:                                                   | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                 | 298         | 719  | 108  | 467         | 1466 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| Reduct Vol:                                                 | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                | 298         | 719  | 108  | 467         | 1466 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| PCE Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                               | 298         | 719  | 108  | 467         | 1466 | 325  | 348        | 723  | 697  | 155        | 544  | 367  |
| Saturation Flow Module:                                     |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                                   | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                 | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                      | 2.00        | 3.00 | 1.00 | 2.00        | 3.00 | 1.00 | 2.00       | 2.00 | 1.00 | 1.00       | 2.00 | 1.00 |
| Final Sat.:                                                 | 3150        | 5700 | 1750 | 3150        | 5700 | 1750 | 3150       | 3800 | 1750 | 1750       | 3800 | 1750 |
| Capacity Analysis Module:                                   |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                                    | 0.09        | 0.13 | 0.06 | 0.15        | 0.26 | 0.19 | 0.11       | 0.19 | 0.40 | 0.09       | 0.14 | 0.21 |
| Crit Moves:                                                 | ****        | **** | **** | ****        | **** | **** | ****       | **** | **** | ****       | **** | **** |
| Green Time:                                                 | 18.0        | 41.0 | 61.0 | 30.0        | 53.0 | 86.8 | 33.8       | 57.0 | 75.0 | 20.0       | 43.2 | 73.2 |
| Volume/Cap:                                                 | 0.84        | 0.49 | 0.16 | 0.79        | 0.78 | 0.34 | 0.52       | 0.53 | 0.85 | 0.71       | 0.53 | 0.46 |
| Uniform Del:                                                | 69.6        | 50.6 | 32.6 | 62.0        | 48.2 | 20.5 | 55.9       | 40.9 | 37.5 | 67.2       | 49.8 | 29.8 |
| IncrcmntDel:                                                | 16.3        | 0.3  | 0.1  | 7.1         | 2.1  | 0.2  | 0.8        | 0.4  | 8.4  | 10.2       | 0.5  | 0.4  |
| InitQueuDel:                                                | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                  | 1.00        | 1.00 | 0.91 | 1.00        | 0.96 | 0.70 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                  | 85.9        | 50.9 | 29.9 | 69.1        | 48.3 | 14.5 | 56.7       | 41.4 | 45.9 | 77.4       | 50.3 | 30.2 |
| User DelAdj:                                                | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                 | 85.9        | 50.9 | 29.9 | 69.1        | 48.3 | 14.5 | 56.7       | 41.4 | 45.9 | 77.4       | 50.3 | 30.2 |
| LOS by Move:                                                | F           | D    | C    | E           | D    | B    | E+         | D    | D    | E-         | D    | C    |
| HCM2kAvgQ:                                                  | 9           | 9    | 3    | 15          | 21   | 6    | 9          | 13   | 33   | 9          | 11   | 13   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project AM

Intersection #5640: LAWRENCE EXPWY/SARATOGA

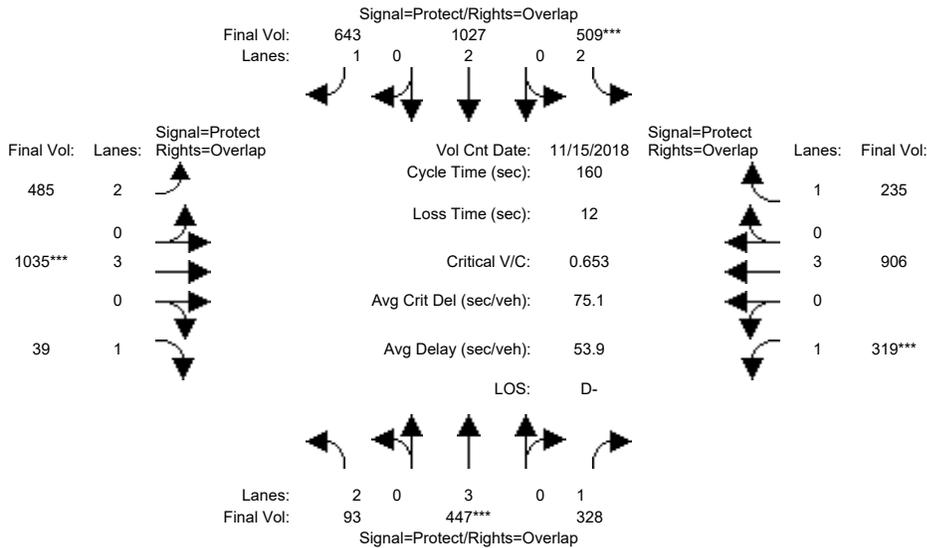


| Approach:                                             | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Movement:                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                           | 10          | 58   | 58   | 3           | 52   | 52   | 38         | 55   | 55   | 19         | 36   | 36   |
| Y+R:                                                  | 4.0         | 4.0  | 4.0  | 4.0         | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  | 4.0        | 4.0  | 4.0  |
| Volume Module: >> Count Date: 3 Oct 2018 << 7:45-8:45 |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                             | 61          | 1076 | 292  | 248         | 289  | 435  | 673        | 788  | 29   | 216        | 886  | 413  |
| Growth Adj:                                           | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                          | 61          | 1076 | 292  | 248         | 289  | 435  | 673        | 788  | 29   | 216        | 886  | 413  |
| Added Vol:                                            | 0           | 0    | 1    | 0           | 0    | 3    | 12         | 24   | 0    | 0          | 6    | 0    |
| PasserByVol:                                          | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                          | 61          | 1076 | 293  | 248         | 289  | 438  | 685        | 812  | 29   | 216        | 892  | 413  |
| User Adj:                                             | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                           | 61          | 1076 | 293  | 248         | 289  | 438  | 685        | 812  | 29   | 216        | 892  | 413  |
| Reduct Vol:                                           | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                          | 61          | 1076 | 293  | 248         | 289  | 438  | 685        | 812  | 29   | 216        | 892  | 413  |
| PCE Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Final Volume:                                         | 61          | 1076 | 293  | 248         | 289  | 438  | 685        | 812  | 29   | 216        | 892  | 413  |
| Saturation Flow Module:                               |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                             | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                           | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00 | 2.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                           | 3150        | 5700 | 1750 | 3150        | 3800 | 1750 | 3150       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                             |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                              | 0.02        | 0.19 | 0.17 | 0.08        | 0.08 | 0.25 | 0.22       | 0.14 | 0.02 | 0.12       | 0.16 | 0.24 |
| Crit Moves:                                           | ****        | **** | **** | ****        | **** | **** | ****       | **** | **** | ****       | **** | **** |
| Green Time:                                           | 11.6        | 58.0 | 77.7 | 14.1        | 60.5 | 99.4 | 38.9       | 55.2 | 66.8 | 19.7       | 36.0 | 50.1 |
| Volume/Cap:                                           | 0.26        | 0.52 | 0.34 | 0.89        | 0.20 | 0.40 | 0.89       | 0.41 | 0.04 | 1.00       | 0.69 | 0.75 |
| Uniform Del:                                          | 69.6        | 39.5 | 25.0 | 71.7        | 33.0 | 14.9 | 58.0       | 39.5 | 27.2 | 69.6       | 56.4 | 48.8 |
| IncrementDel:                                         | 0.6         | 0.2  | 0.2  | 27.3        | 0.1  | 0.2  | 12.3       | 0.1  | 0.0  | 60.0       | 1.6  | 5.7  |
| InitQueueDel:                                         | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                            | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                            | 70.3        | 39.8 | 25.2 | 99.0        | 33.1 | 15.2 | 70.2       | 39.6 | 27.2 | 129.6      | 58.0 | 54.5 |
| User DelAdj:                                          | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                           | 70.3        | 39.8 | 25.2 | 99.0        | 33.1 | 15.2 | 70.2       | 39.6 | 27.2 | 129.6      | 58.0 | 54.5 |
| LOS by Move:                                          | E           | D    | C    | F           | C-   | B    | E          | D    | C    | F          | E+   | D-   |
| HCM2kAvgQ:                                            | 2           | 13   | 9    | 8           | 4    | 11   | 21         | 10   | 1    | 16         | 14   | 20   |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report  
 2000 HCM Operations (Future Volume Alternative)  
 Cumulative + Project PM

Intersection #5640: LAWRENCE EXPWY/SARATOGA



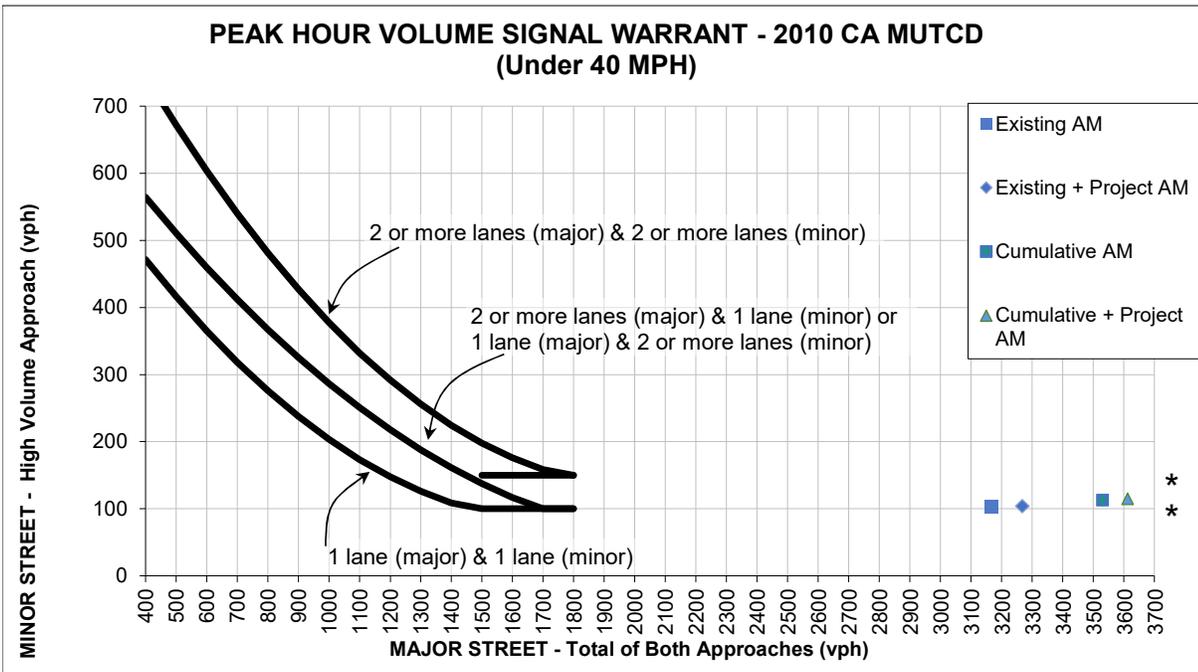
| Approach:                                                   | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------------------------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
|                                                             | L           | T    | R    | L           | T    | R    | L          | T    | R    | L          | T    | R    |
| Min. Green:                                                 | 12          | 54   | 54   | 15          | 58   | 58   | 31         | 40   | 40   | 27         | 36   | 36   |
| Y+R:                                                        | 5.4         | 6.2  | 6.2  | 5.6         | 6.2  | 6.2  | 6.0        | 6.0  | 6.0  | 6.0        | 5.8  | 5.8  |
| Volume Module: >> Count Date: 15 Nov 2018 << 5:00 - 6:00 PM |             |      |      |             |      |      |            |      |      |            |      |      |
| Base Vol:                                                   | 93          | 447  | 328  | 509         | 1027 | 633  | 479        | 1023 | 39   | 318        | 885  | 235  |
| Growth Adj:                                                 | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:                                                | 93          | 447  | 328  | 509         | 1027 | 633  | 479        | 1023 | 39   | 318        | 885  | 235  |
| Added Vol:                                                  | 0           | 0    | 0    | 0           | 0    | 10   | 6          | 12   | 0    | 1          | 21   | 0    |
| PasserByVol:                                                | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:                                                | 93          | 447  | 328  | 509         | 1027 | 643  | 485        | 1035 | 39   | 319        | 906  | 235  |
| User Adj:                                                   | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Volume:                                                 | 93          | 447  | 328  | 509         | 1027 | 643  | 485        | 1035 | 39   | 319        | 906  | 235  |
| Reduct Vol:                                                 | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:                                                | 93          | 447  | 328  | 509         | 1027 | 643  | 485        | 1035 | 39   | 319        | 906  | 235  |
| PCE Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:                                                    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:                                                | 93          | 447  | 328  | 509         | 1027 | 643  | 485        | 1035 | 39   | 319        | 906  | 235  |
| Saturation Flow Module:                                     |             |      |      |             |      |      |            |      |      |            |      |      |
| Sat/Lane:                                                   | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:                                                 | 0.83        | 1.00 | 0.92 | 0.83        | 1.00 | 0.92 | 0.83       | 1.00 | 0.92 | 0.92       | 1.00 | 0.92 |
| Lanes:                                                      | 2.00        | 3.00 | 1.00 | 2.00        | 2.00 | 1.00 | 2.00       | 3.00 | 1.00 | 1.00       | 3.00 | 1.00 |
| Final Sat.:                                                 | 3150        | 5700 | 1750 | 3150        | 3800 | 1750 | 3150       | 5700 | 1750 | 1750       | 5700 | 1750 |
| Capacity Analysis Module:                                   |             |      |      |             |      |      |            |      |      |            |      |      |
| Vol/Sat:                                                    | 0.03        | 0.08 | 0.19 | 0.16        | 0.27 | 0.37 | 0.15       | 0.18 | 0.02 | 0.18       | 0.16 | 0.13 |
| Crit Moves:                                                 | ****        |      |      | ****        |      |      | ****       |      |      | ****       |      |      |
| Green Time:                                                 | 13.6        | 54.0 | 82.6 | 25.4        | 65.8 | 97.5 | 31.8       | 40.0 | 53.6 | 28.6       | 36.9 | 62.2 |
| Volume/Cap:                                                 | 0.35        | 0.23 | 0.36 | 1.02        | 0.66 | 0.60 | 0.78       | 0.73 | 0.07 | 1.02       | 0.69 | 0.35 |
| Uniform Del:                                                | 69.0        | 38.1 | 23.0 | 67.3        | 38.0 | 19.3 | 60.8       | 55.0 | 36.2 | 65.7       | 56.3 | 34.5 |
| IncrementDel:                                               | 0.8         | 0.1  | 0.2  | 45.1        | 1.0  | 1.0  | 6.1        | 1.9  | 0.0  | 55.8       | 1.6  | 0.3  |
| InitQueueDel:                                               | 0.0         | 0.0  | 0.0  | 0.0         | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  | 0.0        | 0.0  | 0.0  |
| Delay Adj:                                                  | 1.00        | 1.09 | 1.26 | 1.00        | 0.88 | 0.55 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Delay/Veh:                                                  | 69.8        | 41.5 | 29.3 | 112.4       | 34.6 | 11.6 | 66.8       | 56.9 | 36.2 | 121.5      | 57.9 | 34.8 |
| User DelAdj:                                                | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:                                                 | 69.8        | 41.5 | 29.3 | 112.4       | 34.6 | 11.6 | 66.8       | 56.9 | 36.2 | 121.5      | 57.9 | 34.8 |
| LOS by Move:                                                | E           | D    | C    | F           | C-   | B+   | E          | E+   | D+   | F          | E+   | C-   |
| HCM2kAvgQ:                                                  | 3           | 6    | 12   | 17          | 17   | 12   | 14         | 15   | 1    | 22         | 14   | 9    |

Note: Queue reported is the number of cars per lane.

## Appendix D

### **Signal Warrants**

**Saratoga Avenue & McFarland Avenue**

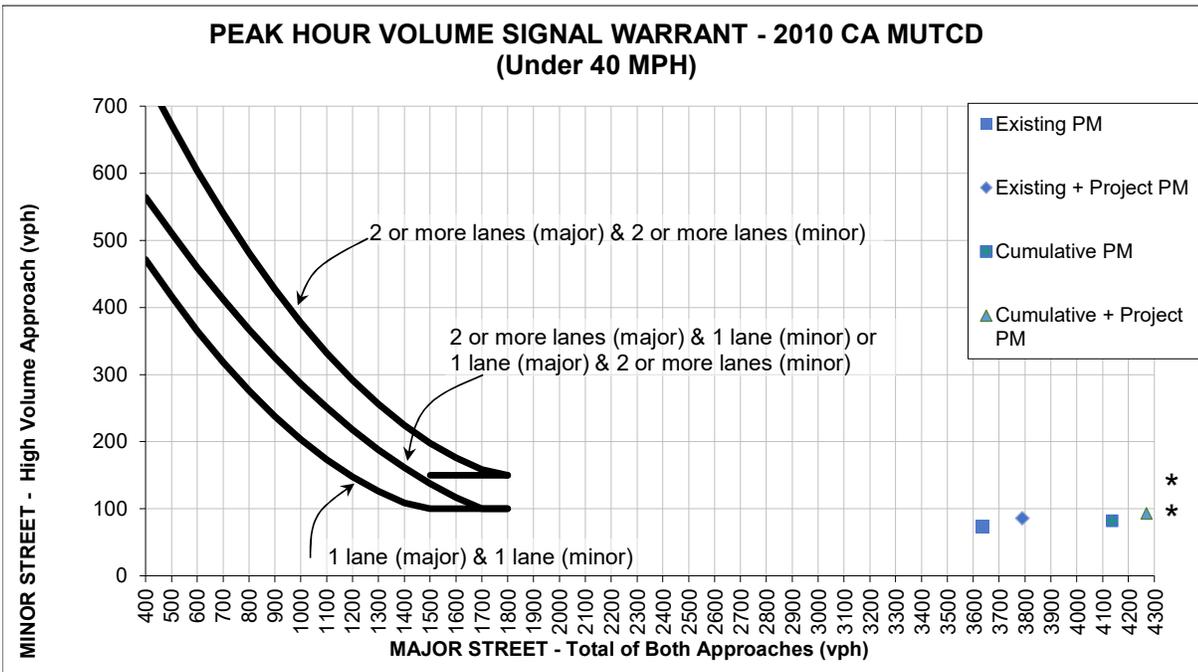


\* NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

**Peak Hour Volume Warrant Per 2003 MUTCD- Under 40 MPH**

|                                 |               | Approach Lanes |          | AM Peak Hour Volumes |                       |               |                         |  |  |
|---------------------------------|---------------|----------------|----------|----------------------|-----------------------|---------------|-------------------------|--|--|
|                                 |               | 2 or           | One More | Existing AM          | Existing + Project AM | Cumulative AM | Cumulative + Project AM |  |  |
| Major Street - Both Approaches  | Saratoga Ave  |                | x        | 3167                 | 3268                  | 3530          | 3613                    |  |  |
| Minor Street - Highest Approach | McFarland Ave | x              |          | 103                  | 104                   | 113           | 115                     |  |  |
| Warrant Met?                    |               |                |          | yes                  | yes                   | yes           | yes                     |  |  |

**Saratoga Avenue & McFarland Avenue**

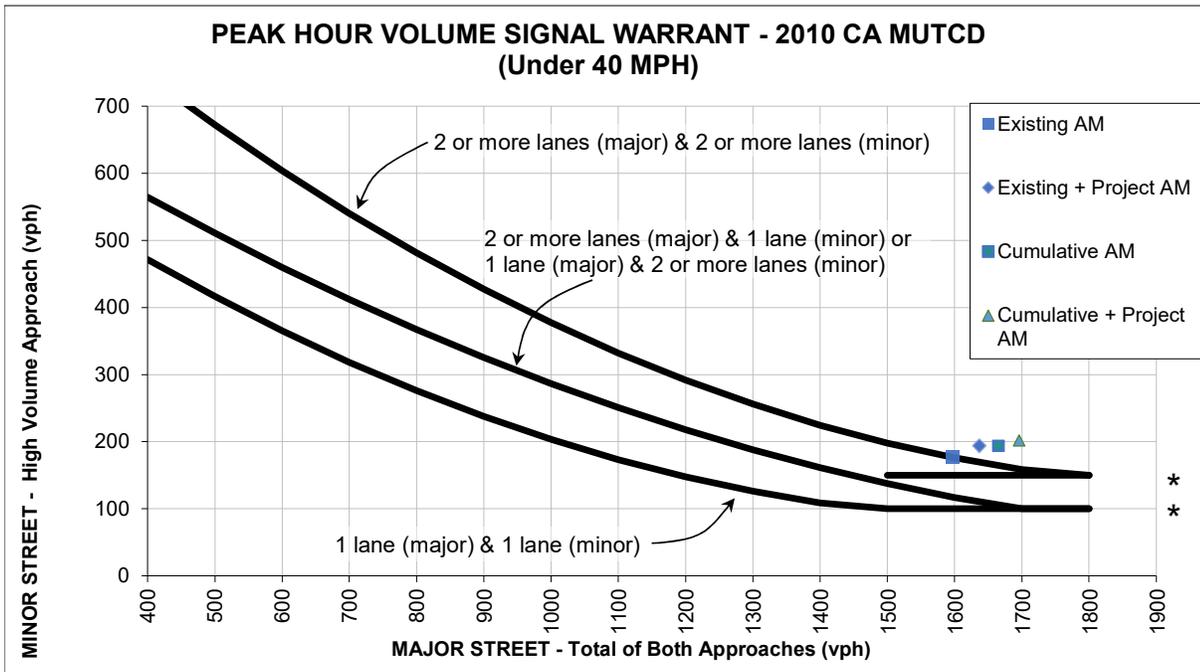


\* NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

**Peak Hour Volume Warrant Per 2003 MUTCD- Under 40 MPH**

|                                 |               | Approach Lanes |          | PM Peak Hour Volumes |                       |               |                         |  |  |
|---------------------------------|---------------|----------------|----------|----------------------|-----------------------|---------------|-------------------------|--|--|
|                                 |               | 2 or           | One More | Existing PM          | Existing + Project PM | Cumulative PM | Cumulative + Project PM |  |  |
| Major Street - Both Approaches  | Saratoga Ave  |                | x        | 3637                 | 3790                  | 4137          | 4270                    |  |  |
| Minor Street - Highest Approach | McFarland Ave | x              |          | 73                   | 86                    | 82            | 93                      |  |  |
| Warrant Met?                    |               |                |          | no                   | no                    | no            | no                      |  |  |

**Quito Road & Cox Avenue**

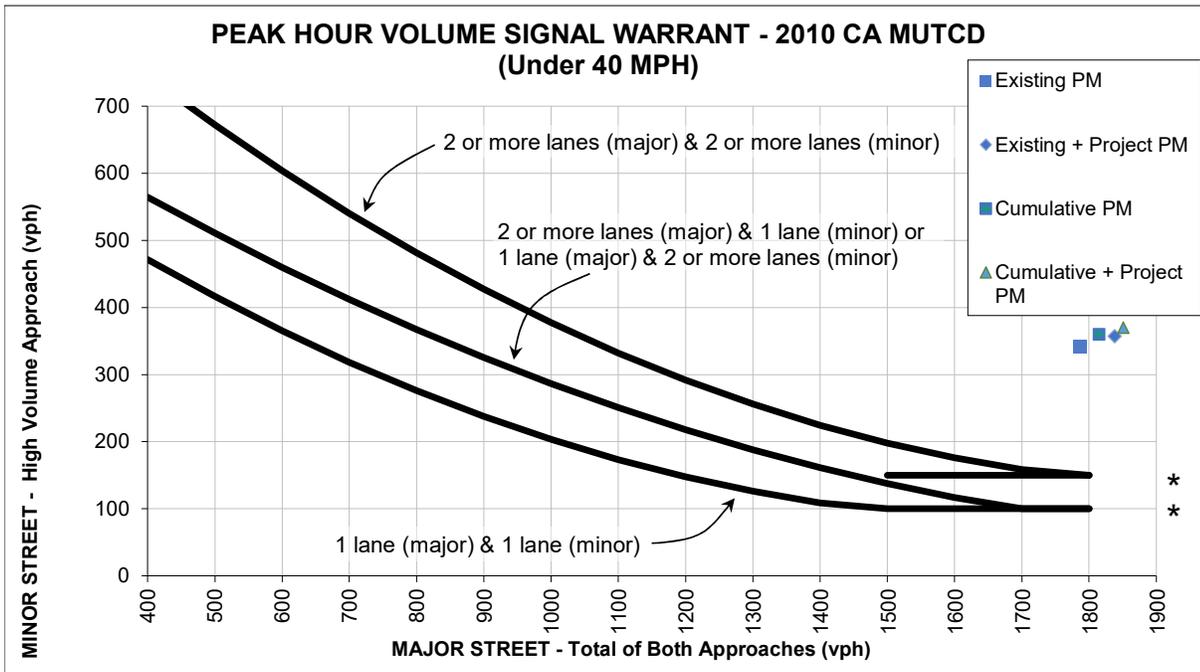


\* NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

**Peak Hour Volume Warrant Per 2003 MUTCD- Under 40 MPH**

|                                 |          | Approach Lanes |  | AM Peak Hour Volumes |                       |               |                         |  |  |
|---------------------------------|----------|----------------|--|----------------------|-----------------------|---------------|-------------------------|--|--|
|                                 |          | 2 or One More  |  | Existing AM          | Existing + Project AM | Cumulative AM | Cumulative + Project AM |  |  |
| Major Street - Both Approaches  | Quito Rd | x              |  | 1598                 | 1637                  | 1665          | 1696                    |  |  |
| Minor Street - Highest Approach | Cox Ave  | x              |  | 177                  | 194                   | 194           | 202                     |  |  |
| Warrant Met?                    |          |                |  | yes                  | yes                   | yes           | yes                     |  |  |

**Quito Road & Cox Avenue**



\* NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

**Peak Hour Volume Warrant Per 2003 MUTCD- Under 40 MPH**

|                                 | Approach Lanes | PM Peak Hour Volumes |   |             |                       |      |      |               |                         |
|---------------------------------|----------------|----------------------|---|-------------|-----------------------|------|------|---------------|-------------------------|
|                                 |                | 2 or One More        |   | Existing PM | Existing + Project PM |      |      | Cumulative PM | Cumulative + Project PM |
|                                 |                | X                    | Y |             |                       |      |      |               |                         |
| Major Street - Both Approaches  | Quito Rd       | x                    |   | 1787        | 1838                  | 1815 | 1851 |               |                         |
| Minor Street - Highest Approach | Cox Ave        | x                    |   | 341         | 357                   | 360  | 370  |               |                         |
| Warrant Met?                    |                |                      |   | yes         | yes                   | yes  | yes  |               |                         |

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APPENDIX E  
**WATER SUPPLY ASSESSMENT**





## WATER SUPPLY ASSESSMENT

# CITY OF SARATOGA 6<sup>TH</sup> CYCLE HOUSING ELEMENT UPDATE, SAFETY ELEMENT UPDATE, 2040 GENERAL PLAN UPDATE, AND ASSOCIATED REZONINGS EIR

August 2022

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**Attachment**

- 1 CITY OF SARATOGA 6<sup>TH</sup> CYCLE HOUSING ELEMENT UPDATE, 2040 GENERAL PLAN UPDATE – VICINITY MAP

Established in 1866, San Jose Water (SJW) is one of the largest privately owned water systems in the United States, providing high-quality water and exceptional service to approximately one million residents of Santa Clara County.

## BACKGROUND & PURPOSE

This Water Supply Assessment (WSA) was requested on March 7, 2022 by City of Saratoga and is associated with the City of Saratoga 6<sup>th</sup> Cycle Housing Element Update, Safety Element Update, 2040 General Plan Update, and Associated Rezoning EIR (Project). As part of the Housing Element update, the City of Saratoga is required to demonstrate that it has the regulatory and land use policies to accommodate its assigned Regional Housing Needs Allocation (RHNA). Furthermore, the Housing Element is required to identify potential sites where housing can be accommodated to meet all the income levels of a jurisdiction's RHNA. The complete list of proposed housing opportunity sites is summarized in Attachments 1A and 1B and shown in Attachment 2. The project proposes to include changes to the General Plan Land Use Element and the City's zoning code necessary to implement the Housing Element.

This WSA describes the relationship between existing and future water supplies and presents SJW's ability to provide a diverse water supply to match build-out water demands under both normal and dry years. This supply consists of treated surface water from Valley Water's local and imported supplies, groundwater, local surface water from Saratoga Creek and Los Gatos Creek watersheds, and non-potable recycled water. Based on water supply projections reported in Valley Water's 2020 Urban Water Management Plan,<sup>1</sup> conservation methods currently employed, and SJW's active commitment to these methods, SJW expects to be able to meet the needs of the service area through at least 2045 for average and single-dry years without a call for mandatory water use reductions.<sup>2</sup> This assumes reserves are at healthy levels at the beginning of the year and that projects and programs identified in Valley Water's Water Supply Master Plan 2040 (WSMP 2040)<sup>3</sup> are implemented.

In multiple-dry year periods, there may be up to a 20 percent mandatory call for conservation to meet supply deficits. Valley Water has established a level of service goal to provide 100 percent of annual water demand during non-drought years and 80 percent during drought years, to minimize shortages and mandatory water use reductions during droughts while preventing overinvestment in water supply projects. SJW is committed to actively working with Valley Water in the development of water supply projects and programs. Projects and programs may include additional long-term water conservation savings, water recycling, recharge capacity, stormwater runoff capture, reuse, out of area water banking, and storage.

This WSA is written in response to California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221); legislation which requires water retailers to demonstrate whether their water supplies are sufficient for certain proposed subdivisions and large development projects subject to the California Environmental Quality Act. SB 610 includes the requirements for detailed water supply assessments and SB 221 includes the requirement for written verification of sufficient water supply based on substantial evidence. SB 610 requires that a WSA be prepared by the local water retailer and submitted within 90

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<sup>1</sup> <https://www.valleywater.org/your-water/water-supply-planning/urban-water-management-plan>

<sup>2</sup> San Jose Water 2020 Urban Water Management Plan

<sup>3</sup> <https://www.valleywater.org/your-water/water-supply-planning/water-supply-master-plan>

days to the requesting agency. SJW’s adoption and submittal of this assessment does not create a right or entitlement to water service or impose or expand SJW’s obligation to provide water service. The City of Saratoga has an independent obligation to assess the sufficiency of water supply for this project. SB 610 provides that the City of Saratoga is to determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the proposed project, in addition to existing and planned future uses.

## SERVICE AREA & POPULATION

SJW’s service area spans 139 square miles, including most of the cities of San José and Cupertino, the entire cities of Campbell, Monte Sereno, Saratoga, the Town of Los Gatos, and parts of unincorporated Santa Clara County.

The population of SJW’s service area, including growth associated with this Plan Area, is shown in the following table. These projections are based on the Association of Bay Area Governments (ABAG) population projections and were included in SJW’s 2020 Urban Water Management Plan.

**Table 1: Current and Projected SJW Service Area Population**

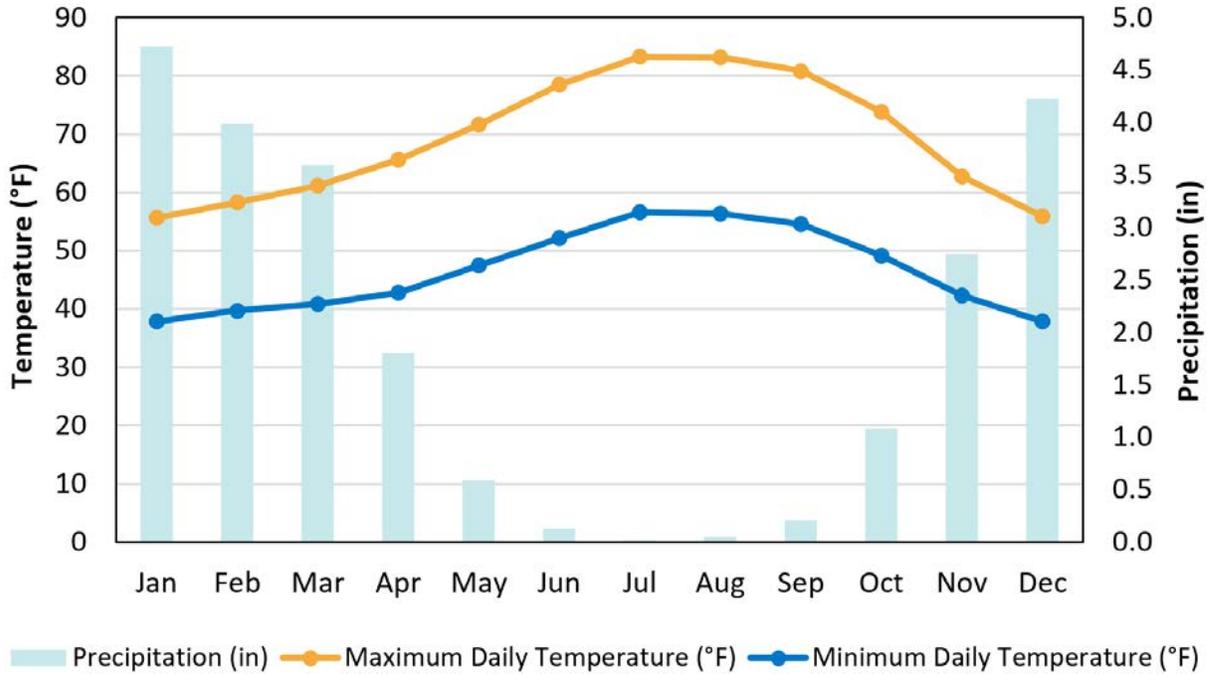
| 2020    | 2025      | 2030      | 2035      | 2040      | 2045      |
|---------|-----------|-----------|-----------|-----------|-----------|
| 997,817 | 1,069,633 | 1,127,593 | 1,191,337 | 1,261,145 | 1,335,044 |

## CLIMATE

Santa Clara County experiences cool, wet winters and warm, dry summers. From 1950-2020, the county received an annual average precipitation total of 23.2 inches. Most precipitation in the region occurs between the months of November and April. Temperature is typically moderate. Maximum monthly average temperatures range from 55.7°F to 83.4°F. Minimum monthly average temperatures range from 37.9°F to 56.6°F. The annual average evapotranspiration rate is 49.6 inches.<sup>4</sup> Summarized temperature and precipitation data is presented in Chart 1.

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<sup>4</sup> Rainfall and temperature data provided by National Oceanic and Atmospheric Administration. Evapotranspiration data comes from California Irrigation Management Information System (Archived San José Station).



**Chart 1: Historical Average Monthly Temperature and Precipitation (1950-2020)**

### PAST, CURRENT, AND FUTURE SYSTEM WATER USE

The majority of connections to SJW’s distribution system are either residential or commercial. SJW also provides water to industrial, institutional, landscape, and governmental connections. Projections from ABAG analyzing the share of single-family versus multi-family development units within SJW’s service were used to determine single- and multi-family demand split within the residential sector. The resale category represents the small mutual water companies, in which SJW provides a master water service and where the mutual water company is responsible for distributing the water.

SJW has developed demand projections from 2025 to 2045 based on population and per capita usage projections. ABAG census tract population projections were used to estimate population growth. Daily per capita water usage for SJW’s service area in 2020 was 108 gallons per capita per day (gpcd). It was assumed that all developments after 2020 would require high water efficiency fixtures. Therefore, a lower daily per capita water use of 75 gpcd across all water sectors was applied to new population growth after 2020. For the existing 2020 population, it was assumed that the 108 gpcd from 2020 to 2025 would increase slightly by 1 percent per year, based on the rebounds in demand that have been observed following the past drought. Following the start of compliance with State conservation mandates (SB 606 and Assembly Bill 1668) in 2025, per capita water use is expected to decrease. It was assumed that the per capita water use for the existing population would experience a decline of 0.8 percent per year from 2025 to 2045.

SJW’s total demand includes water losses, which are separated into two categories: apparent losses and real losses. Apparent losses include all types of inaccuracies associated with customer metering as well as data handling errors. Real losses are physical water losses from the pressurized system and

the utility’s storage tanks, up to the customer meter. These can include lost water through leaks, breaks, and overflows.

Across the last four water loss audits that have been validated and submitted to Department of Water Resources (DWR), SJW water loss is, on average, 7.3 percent of potable water supplied. SJW’s distribution system has had consistently low water losses due to SJW’s proactive approach to reducing leaks, including investments in acoustic leak detection technology and a water main replacement program that prioritizes pipelines for replacement based on their propensity to leak.

**Table 2: Demands for Potable and Non-Potable Water (excluding Recycled Water) (AF/yr)**

| Customer Type                 | 2020           | 2025           | 2030           | 2035           | 2040           | 2045           |
|-------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Single Family                 | 59,497         | 53,877         | 53,877         | 54,187         | 54,411         | 54,550         |
| Multi Family                  | 24,744         | 35,255         | 35,255         | 35,308         | 36,161         | 36,959         |
| Commercial                    | 14,255         | 18,073         | 18,073         | 18,146         | 18,364         | 18,551         |
| Industrial                    | 528            | 718            | 718            | 721            | 730            | 737            |
| Institutional / Governmental  | 5,183          | 6,607          | 6,607          | 6,635          | 6,715          | 6,785          |
| Landscape                     | 7,353          | 7,964          | 7,964          | 7,994          | 8,093          | 8,176          |
| Sales / Transfers / Exchanges | 522            | 568            | 568            | 571            | 580            | 586            |
| Other Potable <sup>1</sup>    | 344            | 417            | 417            | 417            | 420            | 424            |
| Water Losses                  | 9,078          | 9,296          | 9,296          | 9,332          | 9,443          | 9,541          |
| <b>Total</b>                  | <b>121,504</b> | <b>132,776</b> | <b>132,776</b> | <b>133,312</b> | <b>134,918</b> | <b>136,308</b> |

<sup>1</sup>Other potable includes portable meter and unbilled unmetered use. Unbilled unmetered use includes use for construction activities, tank/reservoir cleaning, irrigation at SJW stations, hydrant testing, meter testing, etc.

## ESTIMATED PROJECT WATER USE

Total water usage for the Project is estimated at 629,712 gallons per day (gpd), which is equivalent to an annual usage of about 705 acre-feet of water. The site has an existing water usage of about 156 acre-feet per year. Therefore, the annual net demand increase in water usage associated with this project is 550 acre-feet and represents a 0.45 percent increase over the system wide 2020 water production of 121,504 acre-feet. The projected water demand for the Project is within normal growth projections for water demand in SJW’s system.

**Table 3: Total Water Demand Estimated for the Project**

| <b>Residential Units<sup>(a)</sup></b> | <b>Commercial/Retail Space (SF)<sup>(b)</sup></b> | <b>Total Project Demand (gpd)</b> | <b>Existing Site Demand (gpd)<sup>(c)</sup></b> | <b>Net Project Demand (AF/yr)</b> |
|----------------------------------------|---------------------------------------------------|-----------------------------------|-------------------------------------------------|-----------------------------------|
| 1,994                                  | 1,174,094                                         | 629,712                           | 139,062                                         | 550                               |

<sup>(a)</sup> Residential units assume a demand factor of 60 gallons per capita per day, with 2.81 people per residential unit in Saratoga based on estimates from the California Department of Finance - <https://dof.ca.gov/forecasting/demographics/estimates/estimates-e5-2010-2021/>.

<sup>(b)</sup> Commercial/retail space assumes a water demand factor of 0.25 gpd per SF.

<sup>(c)</sup> Existing daily demand based on usage for the last full calendar year facilities appeared to be in service.

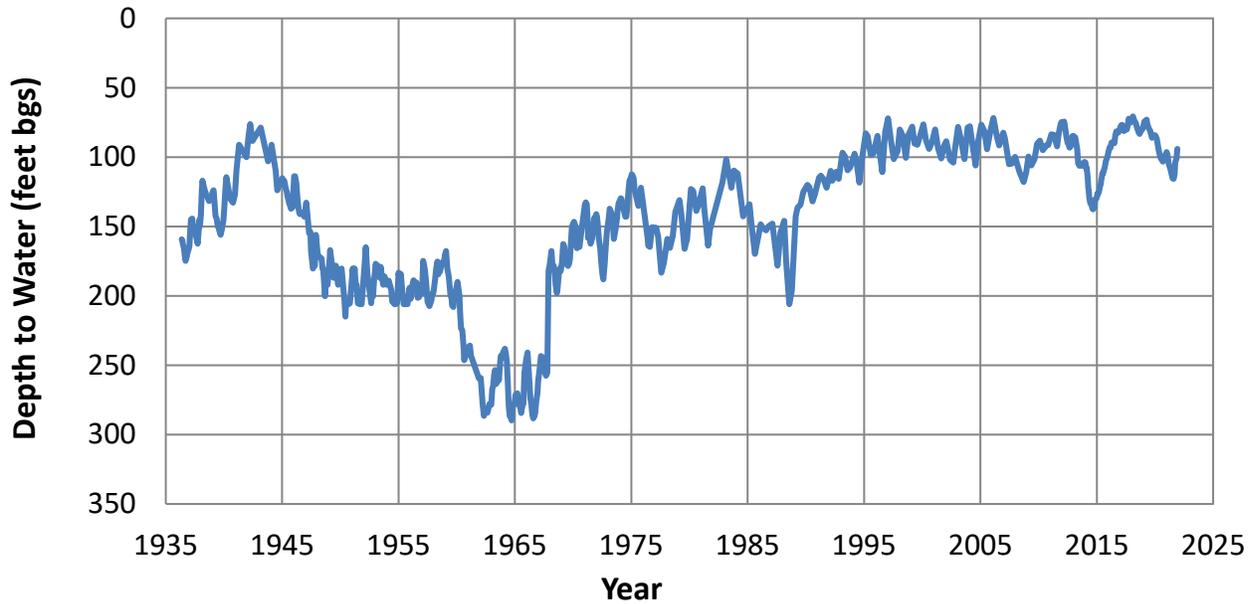
## SYSTEM SUPPLIES

This section describes and quantifies the current and projected sources of water available to SJW. A description and quantification of recycled water supplies is also included.

**Imported Treated Surface Water** – On average, purchased water from Valley Water makes up over half of SJW’s total water supply. This water originates from several sources including Valley Water’s local reservoirs, the State Water Project and the federally funded Central Valley Project San Felipe Division. Water is piped into SJW’s system at various turnouts after it is treated at one of three Valley Water-operated water treatment plants. In 1981, SJW entered into a 70-year master contract with Valley Water for the purchase of treated water. The contract provides for rolling three-year delivery schedules establishing fixed quantities of treated water to be delivered during each period. SJW and Valley Water currently have a three-year treated water contract for fiscal years 2020/2021 – 2022/2023, with contract supplies of 70,723 AF in 2020/2021, 70,723 AF in 2021/2022, and 71,858 AF in 2022/2023. The actual amount of water delivered depends on considerations including hydrologic variability, interruptions in Valley Water facility operations, and water quality.

**Groundwater** – SJW draws water from the Santa Clara Subbasin, which is part of the larger Santa Clara Valley Basin. The Santa Clara Subbasin consists of unconsolidated alluvial sediments and covers a surface area of 297 square miles in the northern part of Santa Clara County. The subbasin is not adjudicated. Valley Water is responsible for maintaining the subbasin and ensuring the subbasin does not become overdrafted. Aquifers in the subbasin are recharged naturally by rainfall and streams and artificially mainly by recharge ponds operated by Valley Water. Due to different land use and management characteristics, Valley Water further delineates the Santa Clara Subbasin into two groundwater management areas: the Santa Clara Plain and Coyote Valley. SJW draws groundwater from the Santa Clara Plain portion, which covers a surface area of 280 square miles and has an operational storage capacity estimated to be 350,000 AF.

Chart 2 shows groundwater elevation in the Santa Clara Plain since the mid 1930’s using well surface elevation as the datum. Although groundwater levels declined during the recent 2012-2016 drought, groundwater levels in the Santa Clara Subbasin quickly recovered after the drought due largely to Valley Water’s proactive response and comprehensive water management activities.



**Chart 2: Groundwater Elevation in Santa Clara Subbasin (Well ID: 07S01W25L001)**

On average, groundwater from the subbasin accounts for 30 to 40 percent of SJW’s total water supply. The following table shows the groundwater SJW pumped from 2016 to 2020.

**Table 4: Amount of Groundwater Pumped by SJW (AF/yr)**

| Basin Name                                             | 2016   | 2017   | 2018   | 2019   | 2020   |
|--------------------------------------------------------|--------|--------|--------|--------|--------|
| Santa Clara Subbasin                                   | 32,644 | 42,194 | 36,075 | 32,825 | 53,276 |
| Groundwater as a percent of total potable water supply | 31%    | 37%    | 31%    | 28%    | 43%    |

**Surface Water** – SJW has “pre-1914 water rights” to surface water in Saratoga Creek, Los Gatos Creek, and associated watersheds, totaling approximately 72 million gallons per day, based on capacity of diversion works from Initial Statements of Water Diversion and Use. SJW also filed for licenses in 1947 and was granted license number 4247 in 1956 by SWRCB to draw 1419 AF/year (462 MG/year) from Saratoga Creek, and license number 10933 in 1979 to draw 6,240 AF/year (2,033 MG/year) from Los Gatos Creek.

**Recycled Water** – South Bay Water Recycling (SBWR) has been serving Silicon Valley communities since 1993 with a sustainable, high-quality recycled water supply. SBWR was created to reduce the environmental impact of freshwater effluent discharge into the salt marshes located at the south end of the San Francisco Bay, and to help protect the California clapper rail and the salt marsh harvest mouse.

In 1997, SJW entered into a Wholesaler-Retailer Agreement with the City of San José to provide recycled water to SJW’s existing and new customers nearby SBWR recycled water distribution

facilities; whereas, the City of San José is the wholesaler and SJW is the retailer. At the time, the involvement of SJW was largely to assist the City in meeting its wastewater regulatory obligations. In accordance with the terms of this agreement, SJW allowed SBWR to construct recycled water pipelines in its service area, SJW would only own the recycled water meters, while SBWR would own, operate, and maintain the recycled water distribution system.

In 2010, this Wholesaler-Retailer Agreement was amended to allow SJW to construct recycled water infrastructure that would be owned, operated, and maintained by SJW. Then in 2012, this Wholesaler-Retailer Agreement was again amended to allow SJW to construct additional recycled water infrastructure.

**Summary of Existing and Planned Sources of Water** – SJW and Valley Water have worked to develop a variety of local and imported water supplies to meet demands. As demands increase with the region’s growth, and imported water supplies potentially become more restricted, these planned supplies will increase in importance. In particular, groundwater, which has historically been a vital source of supply for SJW, was all the more critical during the recent drought. The following table shows the actual amount of water supplied to SJW’s distribution system from each source in 2020 as well as projected amounts until 2045.

**Table 5: Current and Projected Water Supplies<sup>(a)</sup> (AF/yr)**

|                                   | 2020    | 2025    | 2030    | 2035    | 2040    | 2045    |
|-----------------------------------|---------|---------|---------|---------|---------|---------|
| <b>Valley Water Treated Water</b> | 64,290  | 76,799  | 76,713  | 77,041  | 78,023  | 78,877  |
| <b>SJW Groundwater</b>            | 53,276  | 48,623  | 48,568  | 48,777  | 49,400  | 49,937  |
| <b>SJW Surface Water</b>          | 3,937   | 7,494   | 7,494   | 7,494   | 7,494   | 7,494   |
| <b>Recycled Water</b>             | 2,449   | 2,731   | 3,100   | 3,649   | 3,661   | 3,649   |
| <b>Total System Supply</b>        | 123,952 | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |

<sup>(a)</sup>Projected surface water supply volume held constant at the 10-year production average (2011-2020). Remaining potable demands made up by purchased water and groundwater, based on the 10-year historical average (2011-2020) of distribution between these two sources of supply. Projected recycled water supplies are based on projected recycled water demands.

## WATER SUPPLY VULNERABILITY

SJW has identified multiple sources of water for the Project, which would provide a high quality, diverse and redundant source of supply. For added backup, SJW incorporates diesel-fueled generators into its facilities system, which will operate wells and pumps in the event of power outages. Since Valley Water influences on average about 90 percent of SJW’s annual water supply, SJW will continue to work with Valley Water to ensure its water supply is reliable, while the impact to the existing Santa Clara Subbasin is minimal.

## TRANSFER AND EXCHANGE OPPORTUNITIES

SJW’s distribution system has interties with the following retailers: California Water Service Company (Los Altos District), City of San José Municipal Water, City of Santa Clara, City of

Sunnyvale, City of Milpitas, and Great Oaks Water. SJW currently has no plans to use these interties for normal system operation as they are exclusively used for potential emergencies.

## WATER SUPPLY RELIABILITY

SJW has three sources of potable water supply: purchased water, groundwater, and local surface water. These three sources of supply are constrained in one or more ways, driven by legal, environmental, water quality, climatic, and mechanical conditions. Additionally, there is a potential for interruption of supply caused by catastrophic events.

**Purchased Water Supply Reliability** – SJW relies on Valley Water for purchased water supplies, which make up over half of SJW’s total water supplies. Constraints to purchased water supplies from Valley Water include climate change impacts, reductions in imported water supplies, and threats to infrastructure, as detailed below.

- *Climate Change* – Climate change is anticipated to result in warming temperatures, shrinking snowpack, increasing weather extremes, and prolonged droughts. Valley Water’s water supply vulnerabilities to climate change include decreases in the quantity of Delta-conveyed imported water supplies, decreases in the ability to capture and use local surface water supplies due to shifts in the timing and intensity of rainfall and runoff, increases in irrigation and cooling water demands, decreases in water quality, and increases in the severity and duration of droughts.
- *Reductions in Imported Water Supplies* – Valley Water’s State Water Project and Central Valley Project water supplies are also subject to a number of additional constraints, including conveyance limitations and regulatory requirements to protect fisheries and water quality in the Delta. Delta-conveyed supplies are also at risk from Delta levee failures due to seismic threats and flooding, sea level rise and climate change, declining populations of protected fish species, and water quality variations (including algal blooms). Many water quality variations are addressed by blending sources and/or switching sources to Valley Water’s three water treatment plants. Algae and disinfection byproduct precursors have been especially challenging during recent drought conditions.
- *Threats to Infrastructure* – Valley Water’s imported supply infrastructure must travel large distances to reach turnouts. As California is a seismically active state, infrastructure could be damaged and the result would be a disruption to water supply availability. California’s water supply infrastructure is also potentially a target for acts of terrorism.

SJW actively worked with Valley Water during the development of their WSMP 2040 to ensure the following principles were considered:

- Promotion of additional sources of local water supply, such as indirect potable reuse, direct potable reuse, desalination, additional conservation, and an expanded recycled water distribution system

- Coordination of operations with all retailers and municipalities to ensure as much surplus water as possible is available for use in dry years
- Pursuit of innovative transfer and banking programs to secure more imported water for use in dry years

Valley Water’s previous call for a 30 percent reduction during the 2012-2016 drought highlights that more investments in local water sources are necessary to ensure a reliable source of supply during multiple-dry water years. Valley Water plans short- and long-term investments with the goal of requiring no more than a 20 percent water use reduction from the community during a multi-year drought as outlined in its 2040 Water Supply Master Plan. Valley Water has sources of backup supply outside the County and has always relied on multiple supply sources, such as imported water contracts, to supplement existing long-term resources when necessary.

**Groundwater Supply Reliability** – Groundwater supplies are often a reliable supply during normal and short-term drought conditions because supplies are local and large aquifer storage capacity means that groundwater supplies will still be available when surface flows become limited. However, groundwater supply availability can become threatened when overdraft occurs and when recharge and inflow decrease. Water quality is another potential constraint of this source of supply. Threats to groundwater supplies are detailed below.

- *Overdraft* – Under extended supply pressures, groundwater basins can enter overdraft conditions, which can have a series of consequences including land subsidence. Threat of overdraft conditions were witnessed in the recent 2012-2016 drought when groundwater levels declined. However, groundwater levels in the Santa Clara Subbasin quickly recovered after the drought due to Valley Water’s proactive response.
- *Climate Change* – Climate change could increase the potential for overdraft by increasing demand, reducing other sources of supply, and reducing natural recharge and inflows from surface water and precipitation.
- *Regional Growth* – Population growth could increase demands on groundwater supplies, potentially creating risk of overdraft. Regional growth could also increase the amount of contaminants entering groundwater basins as a result of increased urban runoff or industrial or other activities. Growth can also impact recharge areas by expanding impervious surfaces into areas that would otherwise represent entry points for surface water recharging local aquifers.
- *Aging Infrastructure and High Land Costs* – In 2020, SJW prepared a Groundwater Well Asset Management Plan. Findings from the plan showed that SJW’s groundwater well system is vulnerable due to the age of the well infrastructure. Two-thirds of the wells are 50 years or older and were installed with low carbon steel casing using a cable tool drilling method. A low carbon steel casing is susceptible to corrosion and damage in the event of an earthquake. Furthermore, many of SJW’s older cable tool drilled wells were installed without sanitary seals as newer wells are, and as such, are more vulnerable to acting as conduits for downward migration of surface contaminants into the aquifer. Space for replacement wells at SJW’s existing groundwater stations is limited, and thus, the majority of future wells will need to be

located on new properties. However, favorable sites are limited, as they must meet certain production yield and water quality requirements. Furthermore, land prices in the Bay Area are high and present another challenge for SJW to address its aging well infrastructure.

- *Water Quality* – The presence of per- and polyfluoroalkyl substances (PFAS) in groundwater supplies is prompting interest and concern nationwide. Out of an abundance of caution, SJW has been proactively notifying customers and removing wells from service where PFAS has been detected above the State-defined Notification Levels. SJW is in the process of studying its options for removing PFAS. In addition, because SJW depends on multiple sources of supply that use different disinfectants, maintaining a stable disinfectant residual is problematic when system operations require the blending of chlorinated water with chloraminated water to meet demands. Blending sources, depending on each source’s volume and residual concentration, can result in the loss or significant decrease in disinfectant residual levels.

The Santa Clara Subbasin is able to store the largest amount of local reserves and Valley Water, as the groundwater management agency for Santa Clara County, is tasked with maintaining adequate storage in this basin to optimize reliability during extended dry periods. As groundwater is pumped by SJW and other retailers and municipalities in Santa Clara County, Valley Water influences groundwater pumping reductions and thus reliability through financial and management practices to protect groundwater storage and minimize the risk of land subsidence.

**Local Surface Water Supply Reliability** – Local surface supplies are highly variable depending on hydrologic conditions. In years of limited local surface water supplies, SJW relies more heavily on groundwater. Threats to local surface water supplies are detailed below.

- *Climate Change* – SJW’s local surface water supplies are subject to the same climate change impacts as Delta-conveyed supplies and Valley Water’s local surface water supplies, which can result in decreased surface water supplies. During heavy rain events, the quantity of surface water that can be conveyed and treated may be limited by the raw water system hydraulics, high turbidity levels, and WTP capacity. Increased weather extremes and changing precipitation patterns as a result of climate change may prevent surface water supplies from being fully utilized during heavy rain events, and may result in lower surface water supplies during other times of the year.
- *Environmental Regulations* – SJW has bypass flow requirements at its surface water reservoirs and intakes. These requirements establish flow rates that must be released past diversion points to preserve downstream habitat. SJW also maintains minimum levels in reservoirs for habitat preservation. These environmental regulations limit the amount of surface water that SJW is able to divert for water supply.
- *Water Quality* – SJW owns approximately 6,000 acres of land in the watersheds and manages these watershed lands to protect water supplies. Contamination of surface water supplies from upstream activities (animal grazing, residential septic systems, stormwater runoff) is a potential threat, although a low one as there is limited development in the watershed.

- *Aging Infrastructure* – Some of SJW’s raw water infrastructure was constructed in the late 1800s or early 1900s and is in need of renewal to ensure reliability of surface water supplies.

**Supply Reliability by Type of Water Year** – Valley Water’s Urban Water Management Plan identified average, single-dry, and multiple-dry years for water supply reliability planning. According to Valley Water, these years correspond to:

- Average Year (1922-2015): Average supply over the 94 years of 1922-2015.
- Single-Dry Year (1977): Within the historic hydrological record, this was the single driest year.
- Multiple-Dry Years (1988-1992): The 2012-2016 drought was the most recent multiple dry year period that put severe strain on Valley Water’s supplies. However, because imported water allocations are not currently available for the 2012-2016 drought from DWR’s modeling, Valley Water used the 1988-1992 drought, another severe multiple year drought in the historic hydrological record.

Water supplies presented below are based on Valley Water’s Water Evaluation and Planning system model. According to Valley Water, this model simulates their water supply system comprised of facilities to recharge the county’s groundwater basins, local water systems including the operation of reservoirs and creeks, treatment and distribution facilities, and raw water conveyance systems. The model also accounts for non-Valley Water sources and distribution of water in Santa Clara County such as imported water from San Francisco Public Utilities Commission, recycled water, and local water developed by other agencies.

**Table 6: Basis of Water Year Data**

| Year Type                               | Base Year | % of Average Supply |
|-----------------------------------------|-----------|---------------------|
| Average Year                            | 1922-2015 | 100%                |
| Single-Dry Year                         | 1977      | 80%                 |
| Multiple-Dry Years 1 <sup>st</sup> Year | 1988      | 78%                 |
| Multiple-Dry Years 2 <sup>nd</sup> Year | 1989      | 83%                 |
| Multiple-Dry Years 3 <sup>rd</sup> Year | 1990      | 77%                 |
| Multiple-Dry Years 4 <sup>th</sup> Year | 1991      | 78%                 |
| Multiple-Dry Years 5 <sup>th</sup> Year | 1992      | 77%                 |

**Average Water Year** – The average water year represents average supply over the hydrologic sequence of 1922 through 2015. SJW anticipates adequate supplies for years 2025 to 2045 to meet system demand under average year conditions.

**Table 7: Supply and Demand Comparison – Average Water Year (AF/yr)<sup>(a)</sup>**

|                                   | 2025    | 2030    | 2035    | 2040    | 2045    |
|-----------------------------------|---------|---------|---------|---------|---------|
| <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
| <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
| <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |

<sup>(a)</sup>Includes demands associated with the Project.

**Single-Dry Water Year** – The single-dry year was the year with the lowest amount of total supply. Table 10 shows that supplies, with the use of reserves, can meet demands during a single-dry year through 2045, assuming reserves are at healthy levels at the start of a year and projects and programs identified in Valley Water’s WSMP 2040 are implemented. If reserves are low at the beginning of a single-dry year, Valley Water may call for water use reductions in combination with using reserves. As later discussed within the Water Demand Management Measures section, SJW has filed with the California Public Utilities Commission (CPUC) water-waste provisions promoting conservation that would go into effect during a drought. These provisions would result in a reduction in anticipated demand due to conservation such that demand equals available water supplies.

**Table 8: Supply and Demand Comparison – Single-Dry Water Year (AF/yr)<sup>(a)</sup>**

|                                   | <b>2025</b> | <b>2030</b> | <b>2035</b> | <b>2040</b> | <b>2045</b> |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Demand</b>                     | 135,648     | 135,875     | 136,961     | 138,579     | 139,957     |
| <b>Demand Met by Water Supply</b> | 135,648     | 135,875     | 136,961     | 138,579     | 139,957     |
| <b>Demand Met by Conservation</b> | 0           | 0           | 0           | 0           | 0           |

<sup>(a)</sup>Includes demands associated with the Project.

**Multiple-Dry Water Years** – The multiple-dry year period used in this analysis assumes a repetition of the hydrology that occurred in 1988 to 1992. During multiple-dry year droughts, a call for up to mandatory 20 percent conservation may be needed. Valley Water will continue to work on reducing multiple-dry year deficits by securing more reliable and/or diverse water supplies.

Valley Water has established a level of service goal of 100 percent during non-drought years and 80 percent during drought years to minimize water rates, and thus there can be up to a 20 percent call for mandatory conservation to meet this deficit (or more short-term conservation until additional water supplies are secured). Over the next 20 – 30 years, Valley Water is pursuing over \$1 billion in water supply projects to meet the 80 percent level of service goal for all drought years.

**Table 9: Supply and Demand Comparison – Multiple-Dry Water Years (AF/yr)<sup>(a)(b)</sup>**

|                    |                                   | 2025    | 2030    | 2035    | 2040    | 2045    |
|--------------------|-----------------------------------|---------|---------|---------|---------|---------|
| <b>First Year</b>  | <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |
| <b>Second Year</b> | <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |
| <b>Third Year</b>  | <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |
| <b>Fourth Year</b> | <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |
| <b>Fifth Year</b>  | <b>Demand</b>                     | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Water Supply</b> | 135,648 | 135,875 | 136,961 | 138,579 | 139,957 |
|                    | <b>Demand Met by Conservation</b> | 0       | 0       | 0       | 0       | 0       |

<sup>(a)</sup>Includes demands associated with the Project.

<sup>(b)</sup>Table 9 is solely based on SJW’s Urban Water Management Plan, which follows State requirements and utilizes Valley Water estimates which may not reflect actual water supply and demand conditions.

**Regional Supply Reliability** – Valley Water’s Ensure Sustainability water supply strategy has three key elements:

1. Secure existing supplies and facilities
2. Optimize the use of existing supplies and facilities
3. Expand water use efficiency efforts

As part of this strategy, Valley Water’s WSMP 2040 includes developing at least 24,000 AF/yr of additional recycled water (above and beyond the current target of 33,000 AF/yr of non-potable reuse) by 2040. Developing these local sources and managing demands reduces reliance on imported water supplies. In addition, Valley Water is working with multiple water agencies to investigate regional opportunities for collaboration to enhance water supply reliability, leverage existing infrastructure investments, facilitate water transfers during critical shortages, and improve climate change resiliency. Projects to be considered will include interagency interties and pipelines; treatment plant improvements and expansion; groundwater management and recharge; potable reuse; desalination; and water transfers. This program may result in the addition of future supplies for Valley Water.

## WATER DEMAND MANAGEMENT MEASURES

SJW is a signatory of the California Urban Water Conservation Council (CUWCC) and signed the CUWCC Memorandum of Understanding (MOU) in February 2006. The CUWCC is a partnership of water suppliers, environmental groups, and others interested in California water supply who have come together to agree on a set of Best Management Practices (BMPs) for water conservation in the state. Additionally, SJW has its own water-waste provisions that come into effect when there is a water shortage. The CPUC has set forth the rules regarding water waste and water shortages governing investor owned utilities such as SJW. The CPUC rule relating to this is Rule 14.1.<sup>5</sup> This rule states that when there is a low-level water shortage that prompts a call for voluntary conservation by customers, a list of water-waste provisions goes into effect. Rule 14.1 also has provisions for high-level water shortages when mandatory conservation measures are deemed necessary.

SJW provides a full range of water conservation services to customers. The cornerstone of SJW's conservation programs is the CATCH program. The CATCH program empowers customers to understand and optimize their water use. With this free program, a water efficiency expert will check for customer leaks and recommend critical water and money-saving improvements.

Valley Water offers conservation programs, such as rebates for high efficiency toilets and washing machines. SJW takes advantage of all regional rebate programs and all of Valley Water's rebate programs are offered to SJW customers. Typically, customers are directed to specific rebate programs during the course of a water audit based on a customer's need. Customers can also access rebates directly from retail outlets when purchasing equipment such as high efficiency washing machines. SJW collaborates with Valley Water on public outreach and education including such items as customer bill inserts and conservation campaign advertising.

SJW has also increased the outreach and educational programs on outdoor water use. SJW constructed a water-smart demonstration garden that is open to the public. Customers can visit the garden in person or take a virtual tour on SJW's website. SJW also developed a dedicated water wise landscaping website where customers can access a plant information database that includes hundreds of low water use plants as well as a photographic database of water wise gardens in the San José-Santa Clara County area. The landscaping website and demonstration garden tour is accessible from SJW's homepage.

In addition to these programs, SJW engages in other activities that contribute to the overall goal of reducing water waste, but are not specifically designated as conservation or water management programs. These include SJW's meter calibration and replacement program, corrosion control program, valve exercising program and metering all service connections.

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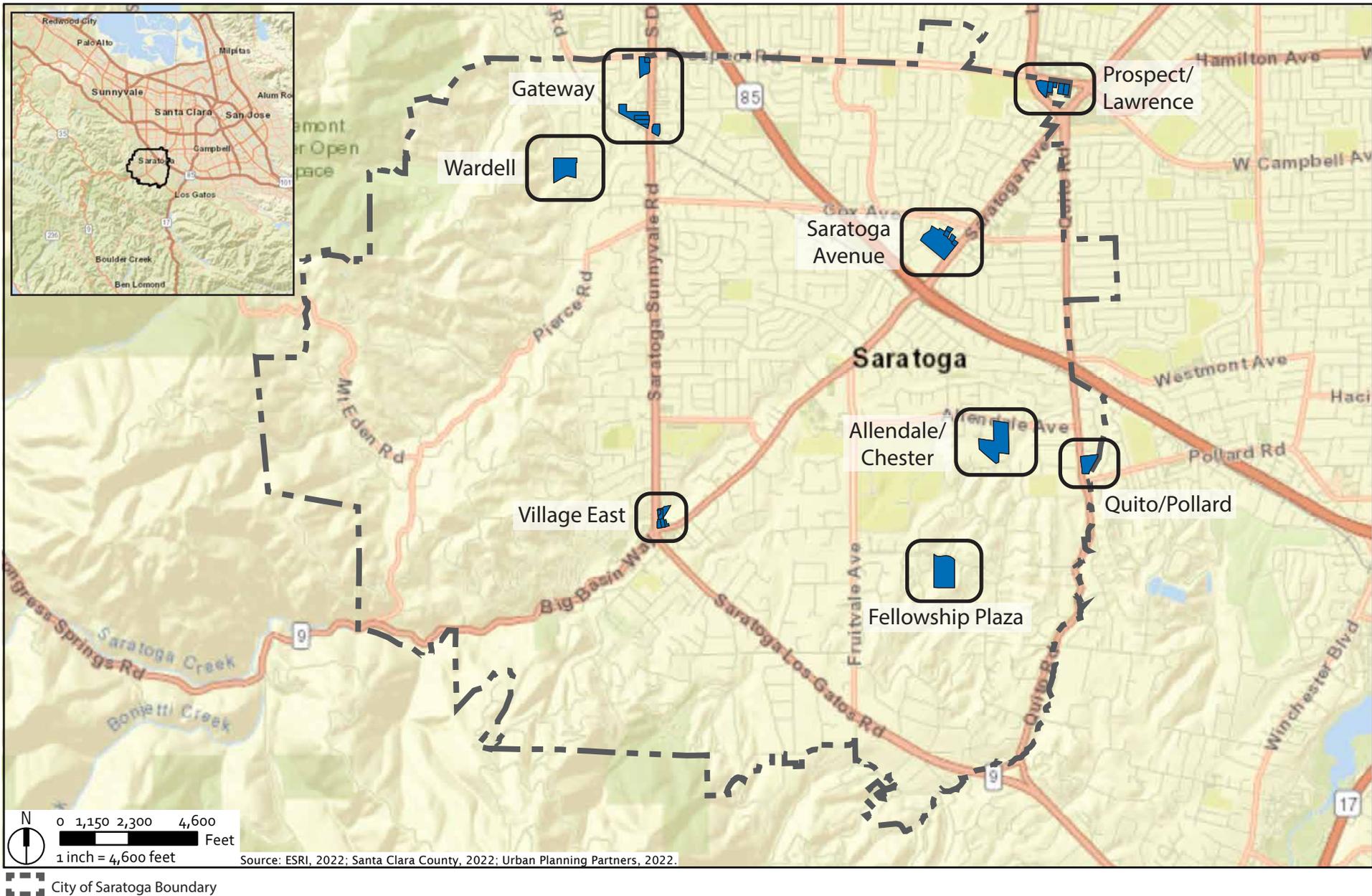
<sup>5</sup> <https://www.sjwater.com/customer-care/help-information/tariff-book>

## SUMMARY

This Water Supply Assessment represents a comprehensive water supply outlook for the City of Saratoga 6<sup>th</sup> Cycle, 2040 General Plan Update. In summary:

- (1) Total net potable water demand for the Project is estimated at 550 acre-feet per year and represents a 0.45 percent increase in total system usage when compared to SJW's 2020 potable water production. The increased demand is consistent with forecasted demands represented in SJW's 2020 Urban Water Management Plan, which projected a 12.2 percent increase in total system demand between 2020 demand and projected 2045 demand.
- (2) SJW currently has contracts or owns rights to receive water from the following sources:
  1. Groundwater – from the Santa Clara Subbasin
  2. Imported and local surface water – from Valley Water
  3. Local surface water – from Los Gatos Creek, Saratoga Creek, and local watersheds
  4. Recycled water – from South Bay Water Recycling
- (3) SJW works closely with Valley Water to manage its demands and imported water needs. The projected water demand for this development is within previously determined growth projections for water demand in SJW's system.

As described in this WSA and based on Valley Water's water supply plans and Urban Water Management Plan projections, SJW expects to be able to meet the needs of the service area through at least 2045 for average and single-dry years without a call for water use reductions. The impact of this project is not consequential and SJW has the capacity to serve this project through buildout based on current water supply capacity and Valley Water's proposed water supply projects. Valley Water is pursuing water supply solutions to meet the established level of service goal to provide 80 percent of annual water demand for drought years. SJW is committed to working with Valley Water to meet future demands and mitigate shortages. After comparing estimated demand associated with this project to water supplies, based on both the SJW and Valley Water Urban Water Management Plans, SJW has determined that the water quantity needed is within normal growth projections and expects for there to be sufficient water available to serve the Project. However, due to factors that affect water supply and demand projections including climate change, there is no guarantee that the projections provided in Valley Water's Urban Water Management Plan will be met, nor is there a guarantee that the water supply projects and programs identified by Valley Water will be implemented.



Attachment 1  
 Diagram Showing Location of Proposed Housing Opportunity Sites  
**City of Saratoga Housing Element Notice of Preparation**