

Housing, Built Environment, Public
Safety, Building Community, Natural
Resources & Environmental Justice
Elements Update to the Redwood City
General Plan

Draft Environmental Impact Report
The City of Redwood City



November 2022

State Clearinghouse No. 2022100449

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1.0 – INTRODUCTION

1.1 CEQA and Purpose of an EIR

The City of Redwood City (City or Lead Agency) completed a comprehensive General Plan update in 2010. In response to State statutory requirements to prepare a sixth cycle Housing Element update and changes to General Plan law since 2010, the City proposes to amend five current General Plan elements: Housing, Public Safety, Built Environment, Building Community, and Natural Resources. Because the amendments focus on the periodic updates necessary to satisfy State Laws related to Housing, Safety and Environmental Justice, these amendments are referred to as a Focused General Plan Update.

The purpose of this Focused General Plan Update is to facilitate new housing growth in Redwood City and comply with State law obligating the City to meet certain housing requirements via the Housing Element; address evolving natural and man-made hazard risks to the community via the Public Safety Element; and identify and address “disadvantaged communities” which are disproportionately affected by environmental pollution and other hazards through Environmental Justice goals, policies, and implementation programs via the Housing, Built Environment, Public Safety, Building Community, and Natural Resources Elements. The Building Community and Natural Resources elements are being updated only to be consistent with and support the updated Housing Element and Public Safety Element and to incorporate Environmental Justice goals, policies, and implementation programs. In addition, the City is proposing specific amendments to the Redwood City Municipal Code and Zoning Code and amendments to the Redwood City Zoning Map to retain consistency between the General Plan and zoning regulations (collectively, the “Focused Zoning Amendments”). Collectively, the Focused General Plan Update and Focused Zoning Amendments are the “Project” evaluated in this EIR. The Planning Area referenced throughout this EIR includes all properties within the corporate City limits, together with properties, incorporated and unincorporated areas, within Redwood City’s sphere of influence (SOI).

The Project is subject to review under the California Environmental Quality Act (CEQA; Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Section 15000 et seq.). Accordingly, the City has prepared this environmental impact report (EIR) to assess the environmental impacts that could result from adoption and implementation of the proposed Project. This EIR has been prepared in accordance with the CEQA Statutes and Guidelines and with the City’s local rules and procedures for implementing CEQA. It was prepared by professional planning consultants under contract to the City. The City is the Lead Agency for preparation of this EIR, as defined by CEQA (Public Resources Code, Section 21067), because it has primary discretionary authority with respect to adoption, amendment, and implementation of the proposed Project. The content of this document reflects the independent judgment of the City.

1.0 – Introduction

The body of State law collectively known as “CEQA” was originally enacted in 1970 and has been amended since. The legislative intent of these regulations is established in Section 21000 of the California Public Resources Code, as follows:

“The Legislature finds and declares as follows:

- A. The maintenance of a quality environment for the people of this state now and in the future is a matter of statewide concern.
- B. It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.
- C. There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.
- D. The capacity of the environment is limited, and it is the intent of the Legislature that the government of the State take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.
- E. Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.
- F. The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.
- G. It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.

The Legislature further finds and declares that it is the policy of the State to:

- A. Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the State.
- B. All plant and animal communities and examples of the major periods of California history.
- C. Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.
- D. Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.

- E. Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.
- F. Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.”

A concise statement of legislative policy, with respect to public agency consideration of projects for some form of approval, is found in Section 21002, quoted below:

The Legislature finds and declares 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 by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof.

1.2 Purpose and Scope

The Project includes goals, policies, and programs that will provide City staff and decision-making bodies with a foundation for analyzing and rendering decisions related to the physical development of the Planning Area and the provision of public services therein. The Project is intended to achieve the planning goals set forth in the Housing, Public Safety, Built Environment, Building Community, and Natural Resources Elements over the Project’s planning horizon. These amendments establish the development potential for various land uses and serve as a policy guide for determining the future physical development and community services within the Planning Area. The City’s Focused General Plan Update and Focused Zoning Amendments analyzed in this EIR have been tailored to reflect current vision regarding housing improvements, address risks from hazards and climate change, and comply with current State law.

Although the Project will allow for an overall increase in development potential for the entire Planning Area, the Project would not, by itself, authorize any specific development project or other form of land use approval or any kind of public facilities or capital facilities expenditures or improvements. As such, a Program EIR is the appropriate type of document to identify the geographic extent of sensitive resources and hazards, along with existing and planned services and infrastructure support systems that occur in the Planning Area. Further, the Program EIR is described in Section 15168 of the CEQA Guidelines as the appropriate analytical framework to assess the cumulative environmental effects of the full plan, in a first-tier level of analysis, to identify broad concerns and sets of impacts, and to define/develop regulatory standards and programmatic procedures that reduce impacts and help achieve environmental goals and objectives.

Later activities proposed within the scope of the Project will be reviewed considering this EIR and may focus on those site-specific and localized environmental issues that could not be examined in sufficient detail as part of this EIR. Advantages of a Program EIR include consideration of effects and alternatives that cannot be reviewed practically at the project-level, consideration of cumulative impacts that may not be apparent on a project-by-project basis, the ability to enact citywide mitigation measures, and subsequent reduction in paperwork.

Organization and Purpose of the Draft EIR

The Draft Program EIR (DEIR or Draft EIR) contains the primary analysis of potential environmental impacts discussed in the following seven sections described below.

- Section 1.0 Introduction
- Section 2.0 Executive Summary: Includes a brief discussion of the project and summary of project impacts, mitigation measures and alternatives
- Section 3.0 Project Description: Provides detailed description of the proposed project, the environmental setting/existing conditions, and project objectives
- Section 4.0 Environmental Impact Analysis: Evaluates project impacts and identifies mitigation measures designed to reduce significant impacts, where applicable. This Section include 20 chapters, each addressing different topical areas (Biological Resources, Air Quality, Noise, etc.).
- Section 5.0 Alternatives: Provides an analysis of the different alternatives to the proposed project
- Section 6.0 CEQA Conclusions: Provides an analysis of growth-inducing impacts, cumulative impacts, significant unavoidable environmental impacts, and irreversible environmental change

The appendices include:

- Appendix A: Notice of Preparation (NOP) from March and an updated NOP from October, including comment letters received and the NOP Distribution List
- Appendix B: List of General Plan Update Goals and Policies
- Appendix C: Existing Conditions Report
- Appendix D: Air Quality, Energy and Greenhouse Gas Analysis Technical Appendices
- Appendix E: Noise Analysis Technical Appendices
- Appendix F: Transportation Impact Analysis

In compliance with Public Resources Code Section 21081.6, a mitigation monitoring reporting program (MMRP) will be prepared as a separately bound document that will be adopted in conjunction with the certification of the Final EIR. The MMRP, responses to public comments on the Draft EIR, and any revisions to the Draft EIR will be identified in the Final EIR.

Approach to EIR Analysis

The approach to the analysis presented in this EIR is programmatic in nature given the broad scope of the Project. Each environmental issue is analyzed in a similar manner, starting with a discussion of the existing environmental setting, including physical conditions and pertinent planning and regulatory framework. Thresholds of significance are then defined and are used to measure the proposed Project's potential impact to the environment. Thresholds of significance are based on a broad list of questions and impact topics set forth in Appendix G of the State CEQA Guidelines.

The impact analysis provided for each the 20 topical areas examines the broad, long-term environmental effects resulting from implementation of the amendments to the Housing Element, Public Safety Element, Built Environment Element, Public Safety Element, Building Community Element, and Natural Resources Element to comply with State requirements related to housing, safety, and Environmental Justice. The assessment of impacts focuses on how the impact in question could occur and whether the goals, policies or some other aspect of the proposed Project would reduce or ameliorate such impacts. The presence of sensitive environmental resources, hazards in specific areas, and broad implications of the Project throughout the Planning Area are considered in the determination of impact significance. If the analysis indicates that a significant impact could occur, even with the benefits of any proposed goals, policies, or implementation measures, mitigation measures are specified.

1.3 Scoping and Public Review

Notice of Preparation

To define the scope of investigation for the Program EIR, the City distributed a Notice of Preparation (NOP) to local, county, State, and federal agencies, along with interested private organizations and individuals on March 4, 2022 and subsequently an updated NOP was circulated on October 20, 2022. In addition to the agencies, interested parties and individuals contacted in March, the updated NOP from October was also distributed to the State Clearinghouse to provide responsible and trustee agencies an official 30-day review period through the Clearinghouse.

- **March 4, 2022 NOP and Scoping Session:** An NOP was circulated for review by public agencies (including responsible and trustee agencies) and the community on March 4, 2022 prior to a scoping session conducted by the City Council on March 15, 2022. The Public Review Period ended on April 4, 2022.
- **October 20, 2022 NOP and Scoping Session:** An Updated NOP was delivered to public agencies, the community, and the State Clearinghouse for the CEQA-required 30-day review period, which began on October 20, 2022 and ended on November 18, 2022. During the review period, the Zoning Administrator conducted a scoping session on November 2, 2022.

The purpose of the NOP is to provide agencies and private entities an opportunity to identify concerns regarding potential impacts of the proposed Project, recommend items to be analyzed

in the DEIR, and to provide suggestions concerning ways to avoid significant impacts (Section 15082, CEQA Guidelines). The NOP is included in Appendix A, along with copies of written comments received during both 30-day public review periods for the NOP as described above, as well as the NOP distribution list.

Copies of the NOP were made available at the City’s Planning Department and electronically via a web link on the City’s website. On March 15, 2022, the City conducted a scoping meeting on the NOP via teleconference, and on November 2, 2022, the Zoning Administrator conducted a scoping meeting on the NOP via teleconference. One member of the public commented during the NOP scoping meeting; this individual commented that historic resources need to be considered in the CEQA process. No one commented at the October NOP scoping meeting. Written comments in response to the NOP were received from one organization. The NOP, summary of comments received at the scoping meeting, and the written comments received on the NOP are included in Appendix A of this EIR.

Public Review of Draft EIR

Comments from all agencies and individuals are invited regarding the information contained in the Draft Program EIR. Such comments should explain any perceived deficiencies in the assessment of impacts or provide the information that is purportedly lacking in the Draft Program EIR or indicate where the information may be found.

The 45-day public review period for the DEIR runs from November 23, 2022 to January 6, 2023. All comments on the Draft Program EIR are to be submitted to:

Apollo Rojas, Senior Planner
Redwood City Community Development and Transportation
1017 Middlefield Road | Redwood City, CA 94063
(650) 780-7365
arojas@redwoodcity.org

Following the 45-day period of circulation and public review of the Draft Program EIR, all comments and the City’s responses to the comments will be incorporated into a Final Program EIR prior to certification of the document by the City of Redwood City.

Availability of EIR Materials

All materials related to the preparation of this Program EIR, including information incorporated by reference, are available for public review. The Notice of Preparation and the Draft Program EIR are posted on the City’s website:

www.welcomehomerwc.org

To request an appointment to review these materials, please contact, Apollo Rojas (see contact information above).

1.4 Notice of Determination

If the Project is approved, the City of Redwood City will file a Notice of Determination (NOD), which will be available for public inspection and posted within 24 hours of receipt at the County Clerk's Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval under CEQA (CEQA Guidelines Section 15094(g)).

1.5 Citation

Preparation of this Program EIR and the Focused General Plan Update and Focused Zoning Amendments relies on information from many sources, including the appendix materials previously listed and numerous other references. Pursuant to Section 15148 of the State CEQA Guidelines, citations from the appendix materials and other sources are provided throughout the EIR. Citations are numbered sequentially and inclusive to each environmental impact topic (Sections 4.1 through 4.20). References are located at the end of each section of this DEIR.

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2.0 - EXECUTIVE SUMMARY

This chapter provides a summary of the City of Redwood City Focused General Plan Update and Focused Zoning Amendments ("Project"), a list of associated environmental issues to be evaluated, a summary of significant impacts and mitigation measures associated with the Project, and a summary of feasible alternatives to the Project, including identification of the environmentally superior alternative.

2.1 Project Location

Redwood City is located in the San Francisco Bay Area on the San Francisco Peninsula in southeastern San Mateo County. It is bounded on the west by the cities of San Carlos, Belmont, and Foster City, the cities of Atherton and Menlo Park on the east, the Town of Woodside and unincorporated San Mateo County on the south, and by the San Francisco Bay to the north.

Major existing transportation facilities include US Highway 101 (U.S. 101), Interstate 280 (I-280), State Route 84 (Woodside Road within the City), and State Route 82 (El Camino Real), Caltrain, the Port of Redwood City, and the San Carlos Airport.

The area covered by the Project consists of the corporate limits of the City as well as lands within the City's "sphere of influence" (SOI). The term "sphere of influence" applies to the area designated by the San Mateo County Local Agency Formation Commission (also known as LAFCO) as the probable, future physical boundary or service area of the City. The San Mateo County LAFCO identifies the City's sphere of influence as primarily the Emerald Hills, Selby, and North Fair Oaks neighborhoods, in addition to areas within and immediately adjacent to the Canyon neighborhood. The sphere of influence lands may have postal addresses in the City, but such areas are actually outside the existing City limits, including unincorporated areas, and, as a result, are currently outside of the City's regulatory jurisdiction. Land use regulatory authority in the sphere of influence areas is held by San Mateo County. However, certain portions of the sphere of influence receive one or more services administered by the City, including water and sewer services. Overall, planning decisions made for the City are assumed to have a bearing on growth and development in these unincorporated adjacent areas; hence the term "sphere of influence."

2.2 Project Description

Every city and county in California is required to have a general plan that functions as a comprehensive, long-range policy document. For cities, the general plan guides the physical development of the incorporated city (e.g., city limit) and any land outside city boundaries (e.g., unincorporated sphere of influence area) that has a relationship to the city's future growth and development. The City of Redwood City's General Plan was last updated in 2010, and the City is proposing to amend the Elements shown below:

2.0 – Executive Summary

- Housing
- Public Safety
- Land Use (Built Environment)
- Building Community
- Natural Resources

As of January 1, 2018, cities and counties are required to either adopt an Environmental Justice Element in their General Plan or integrate environmental justice policies and goals into the elements of the General Plan “upon the adoption or next revision of two or more elements concurrently” (Government Code Section 65302[h][2]). With the Project proposing to update multiple elements, an Environmental Justice Element or environmental justice policies integrated into the General Plan would be required. In Redwood City, these policies may be integrated into the Built Environment Element, Building Community Element, Public Safety Element, and Natural Resources Element, as oftentimes environmental justice issues cross topics.

2.2.1 Approach to EIR Analysis

As required by the CEQA Guidelines, this EIR addresses areas of potential environmental impact or controversy known to the Lead Agency (the City), including those issues and concerns identified by the City in its Notice of Preparation (NOP) of this EIR and by other agencies, organizations, and individuals in response to the NOP. The Draft EIR covers all 20 of the CEQA Appendix G checklist topics, listed below:

- Aesthetics
- Agriculture and Forest 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
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation

- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The approach to the analysis presented in this EIR is programmatic in nature given the broad scope of the Project. Each environmental issue is analyzed in a similar manner, starting with a discussion of the existing environmental setting, including physical conditions and pertinent planning and regulatory framework. Thresholds of significance are then defined and are used to measure the proposed Project's potential impact to the environment. Thresholds of significance are based on a list of questions and impact topics set forth in Appendix G of the State CEQA Guidelines.

The impact analysis provided for each of the 20 environmental issue areas examine the potential environmental effects resulting from implementation of the goals and policies contained in the Project. If the analysis indicates that a significant impact could occur, even with the benefits of any proposed goals or policies, mitigation measures are identified and imposed.

Summary of Significant Impacts and Mitigation Measures

For each of the environmental topics listed above, any "significant" Project or cumulative impact and associated mitigation measure(s) identified in this EIR are summarized in Table 2-1, Summary of Potentially Significant Impacts and Recommended Mitigation Measures. The summary chart has been organized to correspond with the more detailed impact and mitigation discussions in chapters 4.1 through 4.20 of this Draft EIR. The chart is arranged in four columns: (1) identified impacts, (2) potential significance without mitigation, (3) mitigation measure(s), and (4) the level of impact significance after implementation of the mitigation measure(s). Because the table does not list impacts that are less than significant, and therefore do not require mitigation, the Impact/Mitigation Measure numbering may be out of sequence.

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
AIR QUALITY			
<p>Impact AIR-1 – Would the Project conflict with or obstruct implementation of the applicable air quality plan?</p> <p>Although the proposed Project would not result in operational emissions that exceed BAAQMD regional CEQA thresholds (see Impact AIR-2, below) and would comply with all relevant AQP control measures, because construction emissions from the proposed Project may exceed BAAQMD thresholds (as discussed in Draft EIR chapter 4.3, Air Quality, under Impact AIR-2).</p>	Potentially Significant Impact	See AIR-2 (below).	Significant and Unavoidable
<p>Impact AIR-2 – Would the Project 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?</p> <p>Construction emissions associated with future development activities facilitated under implementation of the proposed Project could exceed BAAQMD-recommended CEQA significance thresholds for regional criteria air pollutant emissions.</p>	Potentially Significant Impact	<p>AIR-2: Require a Project-level Construction Assessment for New Discretionary Development Projects. The City shall require applicants to submit a quantitative project-level construction criteria air pollutant and toxic air contaminant emissions analysis for future discretionary development projects. The estimated construction criteria air pollutant and toxic air contaminant emissions shall be compared against the thresholds of significance maintained by the Bay Area Air Quality Management District (BAAQMD) and, if emissions are shown to be above BAAQMD thresholds, the City shall require the imposition and implementation of mitigation measures to reduce emissions below the thresholds that have been exceeded. Mitigation measures to reduce emissions could include, but are not limited to:</p> <ul style="list-style-type: none"> • Selection of specific construction equipment (e.g., specialized pieces of equipment with smaller engines or equipment that will be more 	Significant and Unavoidable

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		efficient and reduce engine runtime); <ul style="list-style-type: none"> • Requiring equipment to use alternative fuel sources (e.g., electric-powered and liquefied or compressed natural gas), meet cleaner emission standards (e.g., U.S. EPA Tier IV Final emissions standards for equipment greater than 50-horsepower), and/or utilizing added exhaust devices (e.g., Level 3 Diesel Particular Filter); • Minimizing the idling time of diesel-powered construction equipment to two minutes; and • Application of Low-VOC paints to interior and/or exterior surfaces (e.g., paints that meet BAAQMD Regulation 8 Rule 3 requirements). 	
<p>Impact AIR-3 – Would the Project expose sensitive receptors to substantial pollutant concentrations?</p> <p>Construction emissions associated with future development activities facilitated under implementation of the proposed Project could exceed BAAQMD construction thresholds and cancerogenic and non-cancerogenic threshold maintained and recommended by the BAAQMD.</p>	<p>Potentially Significant Impact</p>	<p>See AIR-2 (above).</p>	<p>Significant and Unavoidable</p>
<p>BIOLOGICAL RESOURCES</p>			
<p>Impact BIO-1 – Would the Project have a substantial adverse effect, either directly or 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</p>	<p>Potentially Significant Impact</p>	<p>BIO-1. Sensitive Biological Resources Identification: For development applications and implementation of Safety Element policies/implementation programs proposed in sensitive biological resource areas, a qualified biologist shall identify and map all sensitive biological resources on the project site, including local,</p>	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>CDFW or USFWS?</p> <p>Housing sites in the proposed Housing Element Update could be located on or adjacent to natural habitat, including areas along riparian corridors and streams, Bayland areas, grassland, forest, and woodland, which have some potential to support special-status plant and animal species. Potential direct impacts on special-status species could result from implementation of the Housing Element, including direct injury or mortality of individual plants and animals, and loss of habitat that supports special-status species, nesting birds, and roosting bats. Potential indirect impacts that could occur include, but are not limited, habitat modification or deterioration resulting from excess noise, lighting, sedimentation, or stormwater runoff.</p> <p>Vegetation removal, earth moving activities, and degradation of habitat due to construction associated with Safety Element Update policies and implementation programs related to wildland fire protection could also significantly impact special-status species and their habitats.</p>		<p>State and federally sensitive, rare, threatened and endangered plant, fish and wildlife species and their habitats; using methods and protocols in accordance with the USFWS, CDFG, and California Native Plant Society, sensitive natural communities and regulated habitats; and make recommendations for avoiding sensitive biological resources to the maximum extent feasible and pursuant to program BE-2 in the Urban Form and Land Use Chapter of the Built Environment Element. These requirements shall be satisfied prior to approval of any development proposal, or wildland fire or sea level rise protection projects. The qualified biologist's report shall include a desktop analysis utilizing relevant resources including, but not limited to, the CNDDDB, National Wetlands Inventory, and VegCAMP; and a field survey covering the project site. A biological resources report or memo shall be prepared documenting the results of the evaluation, including maps and photos of sensitive biological resources and designated critical habitat. Additionally, the report shall include a description of existing vegetation; habitats; and aquatic features on the site; and an evaluation of the site to support sensitive biological resources, including nesting birds and roosting bats. Mitigation measures from the project-specific biological resources analyses shall be incorporated into the CEQA document for the project and/or adopted as project conditions of approval.</p>	
<p><i>(Impact BIO-1 continued)</i></p>	<p>Potentially Significant Impact</p>	<p>BIO-2a. Avoid Impacts to Special-Status Plant Species: The loss of special status plants should be avoided or reduced for each project site where potential habitat is present. Prior to consideration of any development project, a qualified botanist shall conduct a special-status plant survey, according to protocols established by the CNPS, CDFG, or the USFWS; identify</p>	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		and map special-status plants; and make recommendations for avoiding or mitigating impacts to special-status plants on the project site. Areas containing special-status plants that are to be avoided will be protected temporary environmentally sensitive area (ESA) fencing. Timing of field surveys and fencing should correspond with the blooming period when target species would be observable. If special status plants cannot be avoided, Mitigation Measure 2b shall be implemented.	
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-2b. Compensate for the Loss of Special-Status Plant Species: If special status plants cannot be avoided, the City shall require the development of a compensation plan, including compensation for impacts to special status plant species through preservation, enhancement, and/or restoration of habitat to assist in the recovery of the species. The City shall require that any such compensation plans are incorporated in project plans and conditions of project approval.</p> <p>Prior to construction, individual special status plant species within the work areas that may be impacted shall be enumerated, photographed, and conspicuously flagged to maximize avoidance, as well as to determine the total number of individuals affected. Seed collection from individuals with mature seed that are likely to be impacted should be collected and properly stored for post-construction propagation and re-establishment. The first six inches of topsoil within occupied habitat should be stored separately on site and protected from exotic weeds seed dispersal for the purpose of returning this soil horizon to its appropriate place in the profile in an attempt to salvage any viable seeds in the seed bank.</p>	Less than Significant
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	BIO-3. Consult with the USFWS if Federally-Protected Animal Species or Habitats Supporting	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>these Species are Present: If habitats that potentially support special status species are found within or adjacent to a project area, the project proponent shall consult with the USFWS under Section 7 of the federal Endangered Species Act (or Section 10 if the project involves a federal action) and obtain all required federal permits and approvals and comply with all applicable federal requirements.</p>	
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-4. Consult with CDFG if Habitats Potentially Supporting the Southwestern Pond Turtle or Crotch Bumble Bee are Identified: If suitable habitats that potentially support southwestern pond turtle or the crotch bumble bee are found in a project area, the City shall require that the project proponent avoid these habitat areas, and implement avoidance measures required by the CDFG. If habitat cannot be avoided, mitigation measure BIO-2d shall be implemented.</p>	Less than Significant
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-5. Avoid Impacts on Active Burrowing Owl Nesting and Wintering Burrows: If active burrowing owl nesting or wintering burrows are found on or in the vicinity of a project area, the project proponent shall implement mitigation strategies to avoid, reduce or mitigate impacts to burrowing owls, as required by the CDFG.</p>	Less than Significant
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-6. Compensate for Impacts to Habitat for Special status species: The City shall require compensation for impacts to special status species habitat through preservation, enhancement, and/or restoration of habitat or assist in the recovery of the species. Project plans and conditions of approval shall incorporate all mitigation measures required by the USFWS and/or the CDFG.</p>	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-7. Avoid Impacts on Nesting Birds: To avoid impacts to nesting birds and avoid potential violation of state and federal laws pertaining to birds, all construction of new housing and Safety Element projects (including but not limited to mobilization and staging, clearing, grubbing, tree removal, fence installation, demolition, and grading) and/or vegetation removal and ground disturbance should occur outside the avian nesting season (that is, prior to February 1 or after September 15). If construction and/or vegetation thinning or creation of fuel breaks occurs within the avian nesting season (from February 1 to September 15), all suitable habitats located within the project’s area of disturbance including staging and storage areas plus a 100-foot for non-raptors and a 300-foot buffer for raptors around these areas shall be thoroughly surveyed, as feasible, for the presence of active nests by a qualified biologist no more than five days before commencement of any site disturbance activities and equipment mobilization. If project activities are delayed by more than five days, an additional nesting bird survey shall be performed. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the surveys shall be documented.</p> <p>If pre-construction nesting bird surveys result in the location of active nests, no site disturbance and mobilization of heavy equipment (including but not limited to equipment staging, fence installation, clearing, grubbing, vegetation removal, fence installation, demolition, and grading), shall take place within 100 feet of non-raptor nests and 300 feet of raptor nests, or as determined by a qualified biologist, until the chicks have</p>	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		fledged.	
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-8a. Bat Habitat Assessment: Prior to removal of trees or structures for housing development or fire hazard reduction, a qualified biologist shall conduct a bat habitat assessment of trees and structures to be removed, as well as surrounding trees and structures. The biologist shall search for large cavities and crevices in trees and structures that could support maternity roosts as well as habitat for special-status bat species. Signs of bats such as guano or the smell of bats shall also be noted. Results of the bat habitat assessment shall be documented.</p> <p>If no suitable roosting habitat or signs of bats are found, then no further action is required, and the project may proceed as planned. If suitable roosting habitat or signs of bats are found, then Mitigation Measure 10 shall be implemented.</p>	Less than Significant
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-8b. Dusk Emergence Bat Survey: If suitable roosting habitat or signs of bats are found in trees or structures to be removed on a new housing site or fire fuel reduction area, a qualified biologist shall conduct a dusk emergence survey for roosting bats within 14 days prior to the removal of the tree(s) or structure(s). The biologist shall monitor all suitable roosting trees and structures at dusk for emerging bats, using acoustic equipment to identify the species. Results of the survey shall be documented.</p> <p>If no roosting bats are found during the survey, then no further action is required, and the project may proceed as planned. If roosting bats are found during the survey, a disturbance-free buffer zone shall be established around the roost site during the maternity season (April</p>	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		15-September 15), as determined by a qualified biologist until the maternity season is over. Outside the maternity season (April 15 – August 31) and winter torpor season (October 15 – February 15), roosting bats may be excluded from the tree(s) or structure(s) prior to tree removal as directed by a qualified biologist.	
<i>(Impact BIO-1 continued)</i>	Potentially Significant Impact	<p>BIO-9. Require a Fuel Reduction Management Plan for Wildland Fire Protection Activities: The City or project proponents shall prepare a defensible space management plan to ensure that sensitive resources are not impacted by wildland fire protection activities. The plan shall be prepared by a wildland resources expert in coordination with a biologist/ecologist knowledgeable about the habitats and include but not be limited to the following:</p> <ul style="list-style-type: none"> • Describe the purpose of the management plan and focus on protection of biological resources while reducing fuels and meeting defensible space requirements. • Identify the different vegetation treatments associated with the fuel reduction project. • Describe the sensitive resources that occur or may occur in habitats that would be impacted and how they will be protected. • Provide BMPs for fuel management, which shall include, but would not be limited to the following: <ul style="list-style-type: none"> ○ seasonal restrictions on removal of vegetation ○ restrictions on removal of native vegetation to 	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the extent practicable <ul style="list-style-type: none"> ○ description of sensitive habitats to avoid ○ pre-activity surveys for sensitive species (e.g., special-status plants and wildlife) ○ protection measures for sensitive species and sensitive vegetation communities (e.g., fencing) ○ vegetation disposal guidelines ○ describe protection measures for sensitive resources such as temporary fencing and worker environmental awareness training ○ map sensitive resources with GPS or other method that allows them to be searched for in subsequent years ○ biological monitoring requirements ○ BMPs to protect water quality from unintentional spills and prevent erosion and sedimentation. ○ BMPs to avoid the spread of invasive seeds. 	
<p><i>Impact BIO-2 – Would the Project 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</i></p> <p>Most of the Planning Area is developed, but riparian habitat is present along portions of Redwood Creek, Cordilleras Creek and their</p>	<p>Potentially Significant Impact</p>	<p>BIO-10. Obtain Permits and Implement Conditions of State and Federal Permits for Impacts on Riparian Habitat, Wetlands, and Other Waters of the United States: Potential impacts to riparian habitat and wetlands are CDFG under Section 1600 of the California Fish and Game Code, and San Francisco Bay RWCQB. Potential impacts to wetlands are regulated by the USACE under Section 404 the CWA. Prior to any ground disturbing activities associated with development or Safety Element-related projects that could impact regulated habitats, and prior to the issuance of any</p>	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>tributaries. Additionally, the Planning Area supports several natural communities of special concern.</p> <p>Due to the presence of riparian habitat and other sensitive natural communities in the Planning Area, there is potential that development resulting from implementation of the Housing Element Update could have direct and indirect impacts on these sensitive resources. Such impacts would be considered significant under CEQA.</p>		<p>grading or building permits within the Planning Area, the City shall require the project proponent to obtain all necessary permits pertaining to affected riparian habitat or Waters of the United States, including wetlands, stream channel, and open-water habitat regulated by the USACOE, CDFG, and San Francisco Bay RWQCB. Discharge of fill into Waters of the United States will require a CWA Section 404 permit from the USACOE and CWA Section 401 certification from the San Francisco Bay RWQCB. The permitting process will also require compensation for impacts to riparian habitat and wetlands.</p>	
<p><i>(Impact BIO-2 continued)</i></p>	<p>Potentially Significant Impact</p>	<p>BIO-11. Implement Best Management Practices to Control Invasive Weeds: The invasion and/or spread of noxious weeds during wildland fire protection projects and sea-level rise protection projects shall be avoided by the use of the following invasive weed BMPs:</p> <ul style="list-style-type: none"> • During project activities, all seeds and straw materials used on-site shall be weed-free rice straw (or similar material), and all gravel and fill material shall be certified weed-free. • During project activities, or prior to equipment coming onto a project site, all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering the project site. Vehicles shall be cleaned at existing construction yards or legally operating car washes. • If areas are to be left bare by wildland fire protection treatments, a standard erosion control seed mix from a local source and consisting of native species 	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		shall be planted on any disturbed ground.	
<i>(Impact BIO-2 continued)</i>	Potentially Significant Impact	<p>BIO-12. Implement Best Management Practices to Prevent Pollutant Spills, and Erosion and Sedimentation near Sensitive Habitats: Erosion control and spill prevention measures shall be implemented prior to the start of Safety Element project-related activities that occur near riparian areas and associated aquatic habitat and shall remain in place throughout the construction duration. At a minimum, erosion and sedimentation best management practices shall include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> • Maintain spill prevention kits in proximity to riparian areas and other sensitive vegetation communities when using hazardous materials. • Refueling or maintenance of equipment shall be conducted at least 50 feet from any riparian areas and associated aquatic habitats. • Control exposed soil by stabilizing slopes with erosion control blankets or similar materials, and protecting riparian habitat and associated aquatic habitat with soil stabilization materials such silt fencing, sandbags, or straw wattles. • Ensure that construction vehicles that are operated near riparian areas and other sensitive habitats are maintained daily to prevent leaks of fuels and solvents. • All hazardous materials shall be stored in covered 	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		storage areas or secondary containment that is impervious to leaks and spills. • All disturbed soils shall be revegetated or re-seeded with a native plant mix.	
<p><i>Impact BIO-3 – Would the Project 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?</i></p> <p>Most of the Planning Area is developed, but Bayland areas, especially those areas immediately north and south of Highway 101, areas west of Steinberger Slough in the eastern portion of the Planning Area and areas along streams, and undeveloped areas in the western portion of the Planning Area may support protected wetlands. There is potential that development resulting from implementation of the Housing Element Update and the Safety Element Update could have direct and indirect impacts on state or federally-protected wetlands.</p> <p>Potential direct impacts on state and federally-protected wetlands that could result include, but are not limited to, filling of wetlands and removal and degradation of wetland vegetation.. Potential indirect impacts that could occur include, but are not limited to, habitat modification or deterioration resulting from</p>	Potentially Significant Impact	Implement Mitigation Measures BIO-1, BIO-10, BIO-11, and BIO-12.	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p>excess erosion and sedimentation, spills, or increased stormwater runoff during construction and after project completion. Such impacts would be considered significant under CEQA.</p>			
<p><i>Impact BIO-4 – Would the Project 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?</i></p> <p>Development of individual housing sites may have a significant impact on movement corridors and nursery sites because some proposed housing sites are located in proximity to the Bay, streams and riparian corridors, or other areas with natural or semi-natural vegetation, where potential for development could directly impact movement of native fish if projects require fill/modification to streams (e.g., outfall installation). Certain design features of new housing developments could increase lighting and reflective surfaces near movement and migratory corridors that could increase the risk of bird-building collisions. Additionally, undeveloped and developed sites supporting trees and other vegetation, and certain buildings, could support nesting birds and roosting bats, the removal or disturbance of which could impact wildlife movement and migratory corridors, and impede use of wildlife nursery sites. Also, Safety Element Update vegetation removal activities could result in take</p>	<p>Potentially Significant Impact</p>	<p>Implement Mitigation Measures BIO-7, BIO-8a, and BIO-8b.</p> <p>In addition:</p> <p>BIO-13: Require uniformly applied standards for housing development projects that reduce the risk of avian collision. Design standards shall include but not be limited to reducing, amount of glass facades on new buildings; applying glass and façade treatments such as fritted and frosted glass, and addition of louvers and awnings in front of glass; avoidance, minimization, and treatment of glass railings and walkways near potential flight corridors; avoidance of uplighting, light spillage, and use of green and blue lights; and use of motion sensing lights.</p>	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
of active nests and bat roosts either through direct removal or by causing abandonment of active nests or roosts through noise disturbance.			
CULTURAL RESOURCES			
<p><i>Impact CUL-2 – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?</i></p> <p>Site preparation, grading, and construction activities could adversely impact previously undiscovered archaeological resources.</p> <p>Any development occurring that would result in the discovery of potentially significant archaeological resources would be required to have appropriate investigative study completed by an expert to determine the significance of the resource as part of the existing Cultural Resources Management Plan.</p>	Potentially Significant Impact	<p><i>CUL-2a:</i> For future development of individual projects within the Planning Area, each applicant shall implement the following requirements: if deposits of prehistoric or historic archaeological materials are encountered during project construction activities, all work within an appropriate buffer area around the discovery shall be stopped and a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the deposit(s) and make recommendations to the City Community Development and Transportation Department regarding their treatment, consistent with CEQA Guidelines Section 15126.4 (b)(3).</p> <p>If deposits of prehistoric or historic archaeological materials cannot be avoided by project activities, the City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist to evaluate the potential historic significance of the resource(s). If the deposits are deemed to be non-significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the qualified archaeologist, in coordination with the City Community Development and Transportation Department and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires</p>	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>implementation of a data recovery plan.</p> <p>The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological resource is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.</p> <p>The City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist for the preparation and implementation of the data recovery plan, which shall be conducted by prior to any additional earth-moving activities in the area of the resource. The recovery plan shall be submitted to the project applicant, the City Community Development and Transportation Department, and the Northwest Information Center (NWIC) of the California Historical Resources Information System. Once the recovery plan is reviewed and approved by the City Community Development and Transportation Department and any appropriate resource recovery completed, project construction activity within the area of the find may resume. A data recovery plan shall not be required for resources that have been deemed by the NWIC as adequately recorded and recovered by studies already completed.</p>	

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<i>(Impact CUL-2 continued)</i>	Potentially Significant Impact	<i>CUL-2b:</i> Prior to the issuance of grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo adequate training for the identification of federal or state-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources within the specific project site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. To the extent that individual development projects may be found to have the potential to disturb or destroy archaeological resources, subsequent environmental documentation would be required, including mitigation measures to address any identified significant impacts.	Less than Significant
<i>(Impact CUL-2 continued)</i>	Potentially Significant Impact	<i>CUL-2c:</i> Future development project applicants must comply with the City's Historic Resources Management Plan. Such projects shall prepare a cultural resources plan in compliance with the applicable California Environmental Quality Act regulations for all historic site or sites which have a potential for the on-site discovery, reconnaissance and identification of cultural resources. The cultural resources plan must include the following: <ol style="list-style-type: none"> 1. A records search conducted by the Northwest Information Center of the California Archaeological Inventory. 2. Interview of persons knowledgeable about the history of the site; as approved by staff and 	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>within a time period designated by staff; and</p> <p>3. A review of maps archived at the local history room of the Main Library and other historical data contained in the Redwood City Inventory. (Responsibility: The Developer)."</p> <p>4. With implementation of Mitigation Measures CUL-2a, CUL-2b, and CUL-2c, and the City's established development review process, the Project's potential impacts to archaeological resources would be less than significant.</p>	
<p><i>Impact CUL-3 – Would the Project disturb any human remains, including those interred outside of formal cemeteries?</i></p> <p>Human remains could be discovered during excavation for development, which could result in a significant impact to Native American cultural resources.</p>	<p>Potentially Significant Impact</p>	<p><i>CUL-3a:</i> For future development of individual projects within the Planning Area, if human remains are encountered during ground-disturbing activities within specific project sites, the project contractor and/or on-site supervisor shall provide certification to the City Community Development and Transportation Department that work within 50 feet of the discovery is stopped. The project contractor shall immediately notify the San Mateo County Coroner (Coroner) upon the discovery of any human remains. At the same time, a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted by the project applicant(s) and project contractor, in coordination with the City Community Development and Transportation Department, to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner shall notify the NAHC within 24 hours of this identification. The NAHC will identify a Most Likely Descendant (MLD) to inspect the site and</p>	<p>Less than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>provide recommendations for the proper treatment or disposition, with proper dignity, of the remains and any associated grave goods. Upon completion of the assessment, the qualified archaeologist shall prepare a report documenting the background to the finds and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City Community Development and Transportation Department, and the NWIC. Once the report is reviewed and approved by the City Community Development and Transportation Department, and any appropriate treatment completed, project construction activity within the area of the find may resume. If the MLD does not make recommendations within 48 hours the project applicant(s) shall reinter the remains in an area of the property secure from further disturbance. If the project applicant(s) does not accept the MLD’s recommendations, the applicant(s) or the MLD may request mediation by the NAHC.</p>	
<i>(Impact CUL-3 continued)</i>	Potentially Significant Impact	<p><i>CUL-3b:</i> Prior to the issuance of individual grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo a training session to inform them of the presence and nature of federal or state-eligible cultural resources and the potential for previously undiscovered archaeological resources and human remains within specific project sites, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-</p>	Less than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		related work.	
NOISE			
<p>Impact NOISE-3– Would the Project result in generation of excessive ground-borne noise levels?</p> <p>Future planned mixed-use development adjacent to the Caltrain rail line (residential and non-residential) could be exposed to excessive freight train vibration levels that exceed FTA-recommended vibration criteria (for human annoyance and response factors) of 72 or 75 VdB, respectively.</p>	Potentially Significant Impact	<p>NOISE-1 The City shall require new residential projects located within 200 feet of the railroad track and commercial projects located within 120 feet to conduct a train ground vibration and vibration noise evaluation consistent with approved vibration assessment methodologies (e.g., Caltrans, Federal Transportation Authority).</p>	Less Than Significant
TRANSPORTATION			
<p>Impact TR-2 – Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3(b)?</p> <p>The Project is proposing to increase the housing supply in the city and would likely have a relatively widespread effect on the VMT within Redwood City, and a VMT assessment is presented in this EIR which considers both the Project’s direct impacts relative to Project-generated VMT, as well as the Project’s long-term effect on VMT using boundary VMT. While the Project is estimated to have a significant VMT impact, it is important to note that the Project <i>reduces</i> the citywide home-based VMT per resident as compared to the Cumulative (2040) without Project as well as Baseline conditions. However, the remaining areas outside of downtown Redwood City that have larger VMT per resident are the ones</p>	Significant Impact	<p>TR-1. All future residential development projects that do not meet the City’s VMT screening criteria and exceed the City’s home-based residential VMT threshold shall be required to develop a TDM Plan and quantify the VMT effectiveness of the plan by including data and reduction calculations from the latest <i>CAPCOA Handbook</i>. Not all residential projects will be able to fully reduce their VMT impact because of its land use context (i.e., low-density suburban area, low transit access, etc.). However, each project will be required to demonstrate that they are making a good faith effort toward maximizing their TDM plan and associated VMT reductions. Since, the City cannot demonstrate that the VMT from each future residential development project would be reduced to the degree that is needed to eliminate the VMT impact, the home-based VMT per resident impact would be considered significant and unavoidable with Mitigation TR-1.</p>	Significant and Unavoidable

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
causing the citywide VMT impact, particularly the home-based VMT per resident from development in less dense areas with lower transit accessibility.			
<i>(Impact TR-2 continued)</i>	Significant Impact	TR-2. The City should create a community-wide multimodal transportation impact fee program in the future and/or support and work cooperatively with C/CAG to implement a countywide or sub-regional VMT mitigation program. Future residential projects would be required to pay the applicable community-wide, countywide, and/or sub-regional VMT fees, once those have been established. Since the City has no specified timeline for a community-wide multimodal transportation impact fee program and the City has no control of C/CAG's process and outcome of a regional VMT mitigation program outside its jurisdiction the home-based VMT per resident impact would be considered <i>significant and unavoidable with Mitigation TR-2.</i>	Significant and Unavoidable
TRIBAL CULTURAL RESOURCES			
<p><i>Impact TRC-1: Would the Project 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, 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></p> <p><i>A. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of</i></p>	Potentially Significant Impact	<i>TCR-1a:</i> For future development of individual projects within the Planning Area, each applicant shall implement the following requirements: if deposits of prehistoric or historic archaeological and tribal cultural resource materials are encountered during project construction activities, all work within an appropriate buffer area around the discovery shall be stopped and a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the deposit(s) and make recommendations to the City Community Development and Transportation Department regarding their treatment, consistent with CEQA Guidelines Section 15126.4 (b)(3).	Less Than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
<p><i>historical resources as defined in Public Resources Code section 5020.1(k), or</i></p> <p><i>B. 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. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</i></p> <p>Ground-disturbing activities associated with implementation of the Project could result in damage to or destruction of Tribal Cultural Resources as defined in Public Resources Code section 5020.1(k). Implementation of the Project could disturb soils at depths not previously disturbed by existing or past development or for sites that have not been formally surveyed for TCRs or archaeological resources, which could result in the uncovering of significant tribal cultural resources and potential to damage or destroy TCRs or archaeological resources associated with TCRs.</p>		<p>If deposits of prehistoric or historic archaeological and tribal cultural resource materials cannot be avoided by project activities, the City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist to evaluate the potential cultural significance of the resource(s). If the deposits are deemed to be non-significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the qualified archaeologist, in coordination with the City Community Development and Transportation Department and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan.</p> <p>The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological and tribal cultural resource materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological and tribal cultural resource is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological and tribal cultural context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.</p>	

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		<p>The City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist for the preparation and implementation of the data recovery plan, which shall be conducted by prior to any additional earth-moving activities in the area of the resource. The recovery plan shall be submitted to the project applicant, the City Community Development and Transportation Department, and the Northwest Information Center (NWIC) of the California Historical Resources Information System. Once the recovery plan is reviewed and approved by the City Community Development and Transportation Department and any appropriate resource recovery completed, project construction activity within the area of the find may resume. A data recovery plan shall not be required for resources that have been deemed by the NWIC as adequately recorded and recovered by studies already completed.</p>	
<p><i>(Impact TRC-1 continued)</i></p>	<p>Potentially Significant Impact</p>	<p><i>TCR-1b:</i> Prior to the issuance of grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo adequate training for the identification of federal or state-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological and tribal cultural resources within the specific project site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. To the extent that individual development projects may be found to have the potential to disturb or destroy archaeological and/or tribal cultural resources, subsequent environmental</p>	<p>Less Than Significant</p>

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		documentation would be required, including mitigation measures to address any identified significant impacts.	
<i>(Impact TRC-1 continued)</i>	Potentially Significant Impact	<p><i>TCR-2a:</i> For future development of individual projects within the Planning Area, if human remains are encountered during ground-disturbing activities within specific project sites, the project contractor and/or on-site supervisor shall provide certification to the City Community Development and Transportation Department that work within 50 feet of the discovery is stopped. The project contractor shall immediately notify the San Mateo County Coroner (Coroner) upon the discovery of any human remains. At the same time, a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted by the project applicant(s) and project contractor, in coordination with the City Community Development and Transportation Department to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner shall notify the NAHC within 24 hours of this identification. The NAHC will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment or disposition, with proper dignity, of the remains and any associated grave goods. Upon completion of the assessment, the qualified archaeologist shall prepare a report documenting the background to the finds, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City Community Development and Transportation Department, and the NWIC. Once the report is reviewed and approved by the City Community Development and Transportation</p>	Less Than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Department, and any appropriate treatment completed, project construction activity within the area of the find may resume. If the MLD does not make recommendations within 48 hours the project applicant(s) shall reenter the remains in an area of the property secure from further disturbance. If the project applicant(s) does not accept the MLD's recommendations, the applicant(s) or the MLD may request mediation by the NAHC.	
<i>(Impact TRC-1 continued)</i>	Potentially Significant Impact	<i>TCR-2b:</i> Prior to the issuance of individual grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo a training session to inform them of the presence and nature of federal or state-eligible cultural resources and the potential for previously undiscovered archaeological and/or tribal cultural resources and human remains within specific project sites, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.	Less Than Significant
<i>(Impact TRC-1 continued)</i>	Potentially Significant Impact	<i>TCR-3:</i> Future development project applicants must comply with the City's Historic Resources Management Plan. Such projects shall prepare a cultural resources plan in compliance with the applicable California Environmental Quality Act regulations for all historic site or sites which have a potential for the on-site discovery, reconnaissance and identification of cultural resources. The cultural resources plan must include the following: 1. A records search conducted by the Northwest Information Center of the California Archaeological	Less Than Significant

**Table 2-1:
Summary of Potentially Significant Impacts and Recommended Mitigation Measures**

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Inventory. 2. Interview of persons knowledgeable about the history of the site; as approved by staff and within a time period designated by staff; and 3. A review of maps archived at the local history room of the Main Library and other historical data contained in the Redwood City Inventory. (Responsibility: The Developer).”	

2.2.2 Alternatives to the Proposed Project

To provide a basis for further understanding of the environmental effects of a proposed project and possible approaches to reducing its identified significant impacts, the CEQA Guidelines require an EIR to also “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.”

Identified Alternatives

Alternative 1: No Project (2010 General Plan)

The No Project (2010 General Plan) Alternative assumes that development would occur within the Planning Area, but only in the locations and at the densities allowed or anticipated under the 2010 General Plan. Development assumptions for this alternative are shown in Table 5-1 in EIR Chapter 5.0 (Alternatives). It also assumes that the proposed policy changes in the Housing, Land Use (Built Environment), Public Safety, Building Community, and Natural Resources Elements, and the Environmental Justice policies and programs would not occur.

Alternative 2: RHNA +15% Residential Buffer

The RHNA +15% Residential Buffer Alternative assumes that 5,276 residential units would be provided for. This alternative assumes that policies and goals associated with the proposed Built Environment Element (Urban Form and Land Use Chapter), Housing Element, Public Safety Element, and the Environmental Justice policies and programs would apply. Development assumptions for this alternative are shown in Table 5-1 in EIR Chapter 5.0 (Alternatives).

Alternative 3: Consolidated Housing Sites - Downtown

The Consolidated Housing Sites - Downtown Alternative assumes that the Housing Element’s residential development potential would be restricted to the Downtown area. This would result in a reduction in residential and population potential from the Project. The Consolidated Housing Sites – Downtown Alternative will provide development potential of 1,534 units. This Alternative assumes some of the proposed changes to the amendments to the Housing, Built Environment Element (Urban Form and Land Use Chapter) will not occur. Specifically, the increased density for the Mixed Use designations and the redesignation of parcels along Woodside Road would not occur. The proposed changes to the Public Safety Element and the Environmental Justice policies will be applied. The Consolidated Housing Sites-Downtown Alternative may reduce the air quality and transportation impacts associated with the Project’s VMT, but the unit count associated with this Alternative will not comply with RHNA and thus, does not comply with State law.

Environmentally Superior Alternative

The CEQA Guidelines (section 15126[e][2]) stipulate, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Alternative 1 (No Project) and Alternative 3 (Consolidated Housing Sites – Downtown) would result in reduced or similar less than significant impacts as the Project;

however, they would not meet State laws regarding both the Public Safety and Housing elements. Alternative 2 (RHNA +15% Residential Buffer) is the only alternative that will comply with State law and the City’s objectives. Alternative 2 also reduces some of environmental impacts. As such the “environmentally superior alternative” is Alternative 2 (RHNA +15% Residential Buffer).

Impact/Resource	1. No Project (2010 General Plan)	2. RHNA +15% Residential Buffer	3. Consolidated Housing Sites - Downtown
Aesthetics	Similar LTS	Similar LTS	Similar LTS
Agriculture and Forestry Resources	Similar no impact	Similar no impact	Similar no impact
Air Quality	Reduced but still SU	Reduced but still SU	Reduced but still SU
Biological Resources	Reduced LTS	Reduced LTS	Reduced LTS
Cultural Resources	Similar LTS	Similar LTS	Similar LTS
Energy	Reduced LTS	Reduced LTS	Reduced LTS
Geology and Soils	Possible Significant Impact Requiring Mitigation	Similar LTS	Similar LTS
Greenhouse Gas Emissions	Reduced LTS	Reduced LTS	Reduced LTS
Hazards and Hazardous Materials	Reduced LTS	Similar LTS	Similar LTS
Hydrology and Water Quality	Reduced LTS	Reduced LTS	Reduced LTS
Land Use and Planning	Similar LTS	Similar LTS	Increased impacts
Mineral Resources	Similar no impact	Similar no impact	Similar no impact
Noise	Reduced LTS with mitigation	Reduced LTS	Reduced LTS
Population and Housing	Reduced LTS	Similar LTS	Increased and SU
Public Services	Reduced LTS	Reduced LTS	Reduced LTS
Recreation	Reduced LTS	Reduced LTS	Reduced LTS
Transportation	Reduced but still SU	Reduced but still SU	Reduced but still SU

Impact/Resource	1. No Project (2010 General Plan)	2. RHNA +15% Residential Buffer	3. Consolidated Housing Sites - Downtown
Tribal Cultural Resources	Similar LTS	Similar LTS	Similar LTS
Utilities and Service Systems	Reduced LTS	Reduced LTS	Reduced LTS
Wildfire	Possible Significant Impact	Similar LTS	Similar LTS
Source: MIG, 2022 LTS= Less-than-Significant Impacts SU= Significant and Unavoidable Impacts			

2.2.3 Areas of Controversy

One area of controversy arose during preparation of the Project. This includes water availability, as outlined below:

Water Availability. It is unclear if or how the San Francisco Public Utilities Commission (SFPUC) can provide sufficient water supplies to Redwood City to support the anticipated growth in housing under the Project plus cumulative conditions.

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3.0 PROJECT DESCRIPTION

Every city and county in California is required to have a general plan that functions as a comprehensive, long-range policy document. For cities, the general plan guides the physical development of the incorporated city (i.e., city limits) and any land outside city boundaries (i.e., unincorporated sphere of influence area - SOI) that has a relationship to the city's future growth and development. Together, the incorporated city plus the SOI are called the Planning Area. The City of Redwood City's General Plan was last updated in 2010, and the City is proposing to amend the five Elements listed below:

- Housing
- Land Use (Built Environment)
- Public Safety
- Building Community
- Natural Resources¹

Because the City is revising specific portions of the General Plan, the update is referred to as a Focused General Plan Update.

The City is proposing to incorporate Environmental Justice policies throughout various General Plan Elements, in response to recent State General Plan Law (California Government Code (CGC) § 65302(h)). In addition to the Focused General Plan Update, the City is proposing various amendments to the Zoning Code and Municipal Code in compliance with CGC Section 65300 et seq. and to make the codes consistent with the Focused General Plan Update and to support administration of the affordable housing ordinance. Therefore, the proposed "Project" that will be evaluated in this EIR is adoption of both the Focused General Plan Update and Focused Zoning and Municipal Code Amendments (collectively, the Project).

The Project will ensure that the General Plan meets the requirements of California Government Code (CGC) Article 5 (Authority for and Scope of General Plans)²; that the General Plan addresses changes to the demographic, economic, and environmental conditions in Redwood City that are anticipated to occur through the year 2030; and that the Zoning Code is consistent with General Plan.

1 The goals, policies and programs associated with Environmental Justice are incorporated in all 5 (Housing, Land Use, Public Safety, Building Community, and Natural Resources) Elements.

2 CGC Article 5 requires every city and county to have a general plan that functions as a comprehensive, long-range policy document.

3.1 Background

3.1.1 Housing Element

The Housing Element specifies ways to meet the housing needs of existing and future resident populations in Redwood City. This Element must be updated periodically, consistent with State law, and each draft Housing Element must be reviewed and approved by the California Department of Housing and Community Development (HCD). The Housing Element contains extensive analysis of housing needs, constraints to housing production, fair housing assessments, housing resources, public engagement, previous accomplishments and future goals, policies, and programs.

The Housing Element update addresses changes that have occurred since adoption of the 5th cycle Regional Housing Needs Allocation (RHNA) Projection Period (2014–2022). During the 2015-2023 Housing Element planning period, the City created opportunities for more affordable housing by creating a new inclusionary housing ordinance, establishing an affordable housing impact fee, and creating a linkage fee for new job-generating uses to support affordable housing. The Housing Element Update also contains updated demographic information, housing needs data to reflect current conditions.

Central to the Housing Element Update is the analysis of Opportunity Sites that could support the residential development necessary to satisfy the RHNA of 4,588 housing units for the 6th cycle (2022-2030). These Opportunity Sites are depicted in Figure 3-5 showing the location within Redwood City and Table 3-1 lists the housing types being used to satisfy Housing Element requirements (also shown in the Housing Element as Table H3-16) and provides information about affordability.

**Table 3-1:
Comparison of Credits, Sites, and RHNA**

Project	Extremely/ Very Low- Income (0- 50% AMI)	Low- Income (50-80% AMI)	Moderate -Income (80-120% AMI)	Above Moderate- Income (+120%)	Total
<i>RHNA</i>	1,115	643	789	2,041	4,588
RHNA Credits					
Approved Projects	126	223	52	1,005	1,406
Sites Inventory					
Proposed Projects	258	477	131	1212	2,078
Projected ADU construction	152	152	152	50	506
Projected SB 9 construction	--	--	137	138	275

**Table 3-1:
Comparison of Credits, Sites, and RHNA**

Project	Extremely/ Very Low- Income (0- 50% AMI)	Low- Income (50-80% AMI)	Moderate -Income (80-120% AMI)	Above Moderate- Income (+120%)	Total
Projected Middle R2-R5 Zone Changes	--	--	253	253	506
Residential Sites	1	0	3	0	4
Mixed Use Sites	539	248	632	309	1,728
Downtown Precise Plan Sites	219	126	155	--	500
Subtotal Sites Inventory	1,169	1,003	1,463	1,962	5,597
Total	1,295	1,226	1,515	2,967	7,003
Surplus RHNA Sites	180	583	726	926	2,415
% Surplus					53%

The main components of the Housing Element Update required by Government Code Section 65583 include:

- A detailed analysis of the City’s demographic, economic, and housing characteristics,
- A comprehensive analysis of the barriers to producing and preserving housing,
- A review of the City’s progress in implementing its adopted housing policies and programs,
- An identification of policies and actions, and a full list of programs that will help the City carry out the policies, and
- A list of Opportunity Sites that could accommodate new housing, demonstrating the City’s ability to meet its target number of new homes established in the RHNA.

To meet the RHNA target, the City is implementing different categories of strategies that include approved but not yet constructed projects, proposed projects, potential sites, and rezoning actions to increase residential capacity. The City has identified a range of potential housing project types to meet its RHNA requirements including:

- Approved, but not yet constructed, housing projects,
- Active housing development applications,
- Accessory dwelling units,
- Missing Middle Housing (i.e., duplexes, triplexes, and fourplexes),
- Duplexes on lots zoned for single-family homes,

3.0 – Project Description

- Subdivisions of single-family lots into two lots, and
- Underutilized sites in Mixed Use Zoning Districts, Downtown, and along major corridors.

3.1.2 Public Safety Element

The Public Safety Element will be updated to incorporate information on natural and human-caused hazards and climate change. A Safety Element is required by Government Code Section 65302(g), which lays out the legislative framework for the Element. The purpose of the Public Safety Element is to address the protection of the community from risks resulting from geologic hazards, including earthquakes, ground shaking, liquefaction and landslides; flooding, including dam failures and inundation; fires; climate change; hazardous materials spills; airport operations; and other hazards. Among other things, the Safety Element addresses the following issues:

- Protecting against significant risks related to earthquakes, tsunamis, seiches, dam failure, landslides, subsidence, flooding, and fires, as applicable;
- Including maps of known seismic and other geologic hazards;
- Addressing evacuation routes, military installations, peak-load water supply requirements, and minimum road widths and clearances around structures as related to fire and geologic hazards, where applicable;
- Identifying areas subject to flooding and wildfires;
- Avoiding locating critical facilities within areas of high risk; and
- Assessing the community's vulnerability to climate change, including adaptation and resilience goals, policies, and implementation actions.

Sections of the Public Safety Element are being amended in response to State law, including Senate Bill (SB) 379, SB 1035, and SB 1241. SB 379 requires Safety Elements to be updated to address climate change impacts, focusing on wildfire hazard, sea level rise, and climate resiliency. As such, existing the Public Safety Element's existing background discussion, goals, policies, and implementation programs pertaining to wildfire hazard will be updated, and new information and goals, policies, and implementation programs for sea level rise and climate adaptation will be incorporated. SB 1035 requires planning agencies to review and, if necessary, revise the Safety Element to identify new information relating to flood and fire hazards that was not previously available during the previous revision of the Safety Element. As such, the Project includes updating existing flood and fire hazard information in the Public Safety Element. The Project does not include updating information on hazardous materials and waste, aviation facilities, terrorism, police resources, and noise.

The Public Safety Element directly relates to topics included in the Built Environment and Natural Resources Elements and provides key considerations for the new Environmental Justice policies. The Public Safety Element must identify relevant hazards and ways to reduce risks resulting from those hazards to guide local decisions related to zoning and development regulations. Policies and implementable programs include methods to build community

resilience against hazards by minimizing and preparing for risks and promoting swift recovery following disasters.

3.1.3 Environmental Justice Goals, Policies, and Objectives (Building Community and Natural Resources Elements)

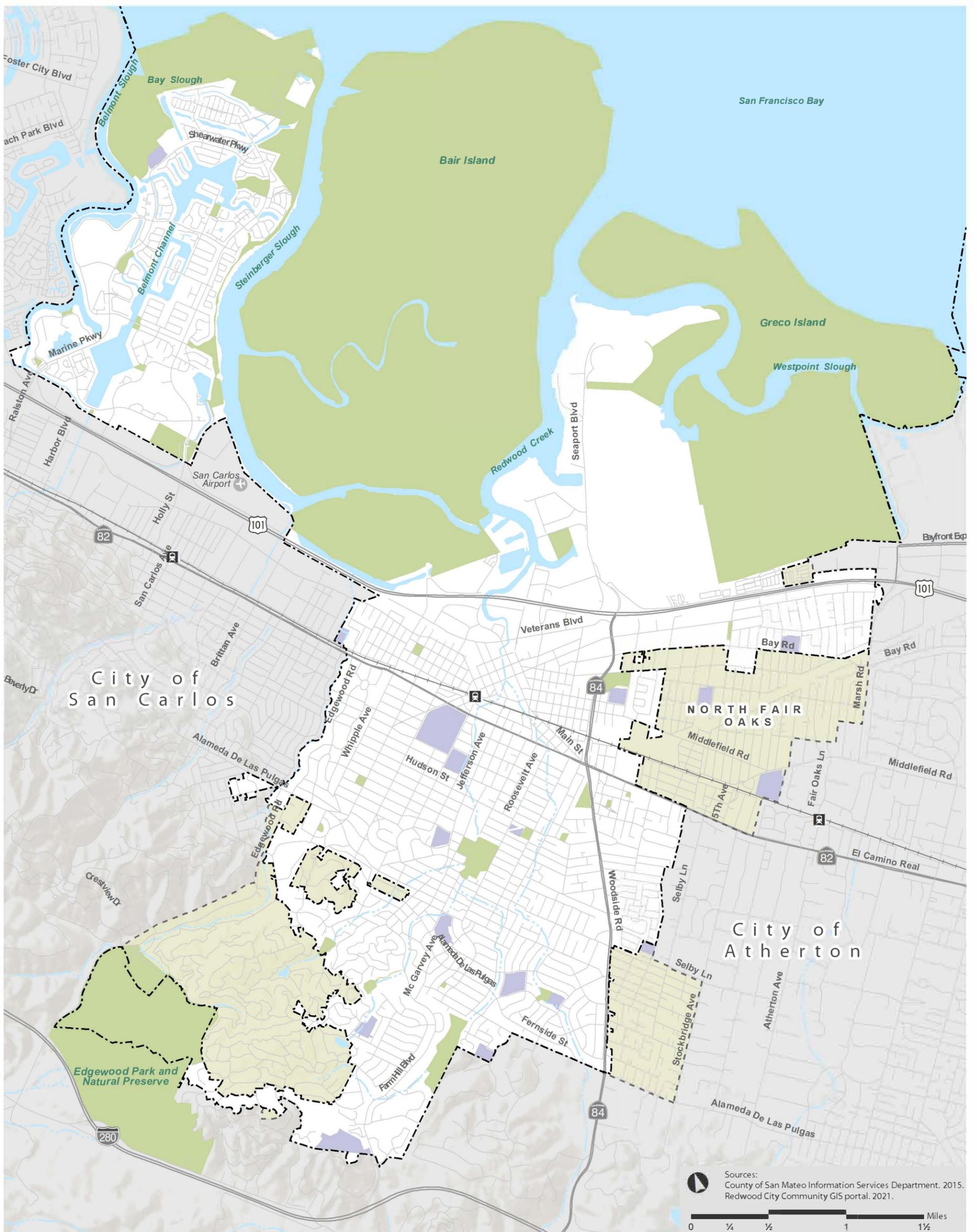
The Project also includes an update to the Building Community and Natural Resource Elements to incorporate information related to environmental justice and address opportunities to identify objectives and policies to reduce health risks (e.g., reduce pollution, improve air quality, promote safe access to services and food, etc.), promote civic engagement, prioritize improvements and programs that address the needs of disadvantaged communities. In combination, these General Plan Amendments satisfy the requirements of an Environmental Justice Element as required by Government Code Section 65302(h).

3.1.4 Built Environment Element

Updates to the Housing Element necessitate revisions to the Built Environment Element of the General Plan to reflect changes in the use and residential capacity of some of the developable sites identified in the Housing Element, as well as to reflect the proposed Zoning Code and Municipal Code amendments. The Project therefore includes an update to the Built Environment Element to establish policies and programs necessary to implement the Housing Element, Safety Element and Environmental Justice objectives.

3.2 Project Location

Redwood City is located in the San Francisco Bay Area on the San Francisco Peninsula in southeastern San Mateo County. The area covered by the Focused General Plan Update consists of the corporate limits of the City as well as lands within the City’s “sphere of influence” (SOI). The term “sphere of influence” applies to the area designated by the San Mateo County Local Agency Formation Commission (also known as LAFCO) as the probable, future physical boundary or service area of the City. The San Mateo County LAFCO identifies the City’s sphere of influence as primarily the Emerald Hills, Selby, and North Fair Oaks neighborhoods, in addition to areas within and immediately adjacent to the Canyon neighborhood. Figure 3-1, Regional Context Map, shows the Planning Area’s regional location, and Figure 3-2 shows the Planning Area. Collectively, the City limits and the SOI are referred to as the “Planning Area.”

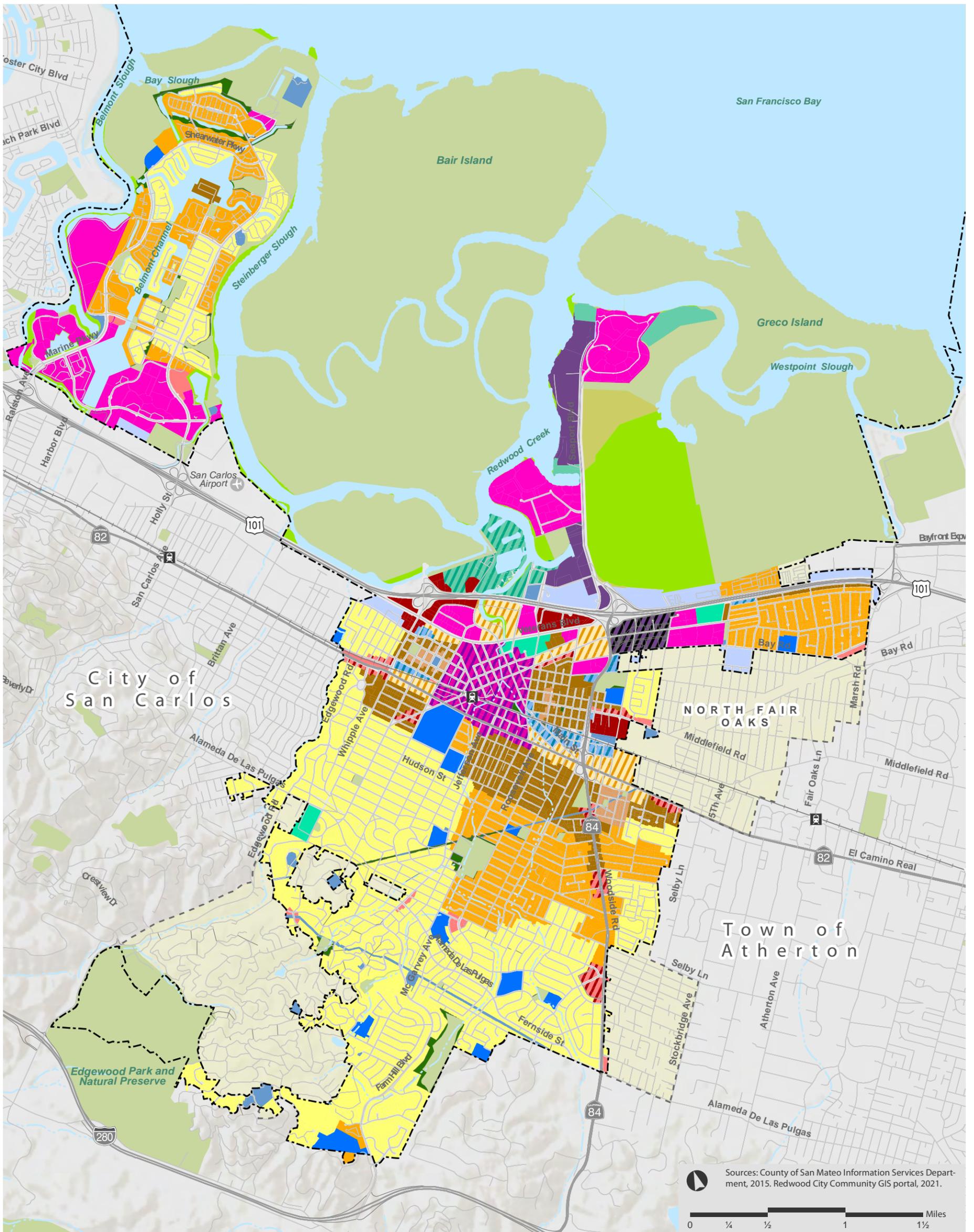


Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- ++ Railway and Stations
- San Mateo County Streets
- 101 US Highway 101
- Channel, Rivers, and Streams
- Bay, Harbor, and Sloughs
- Open Space and Parks
- Schools



Figure 3-2: Planning Area Map



General Plan Land Use

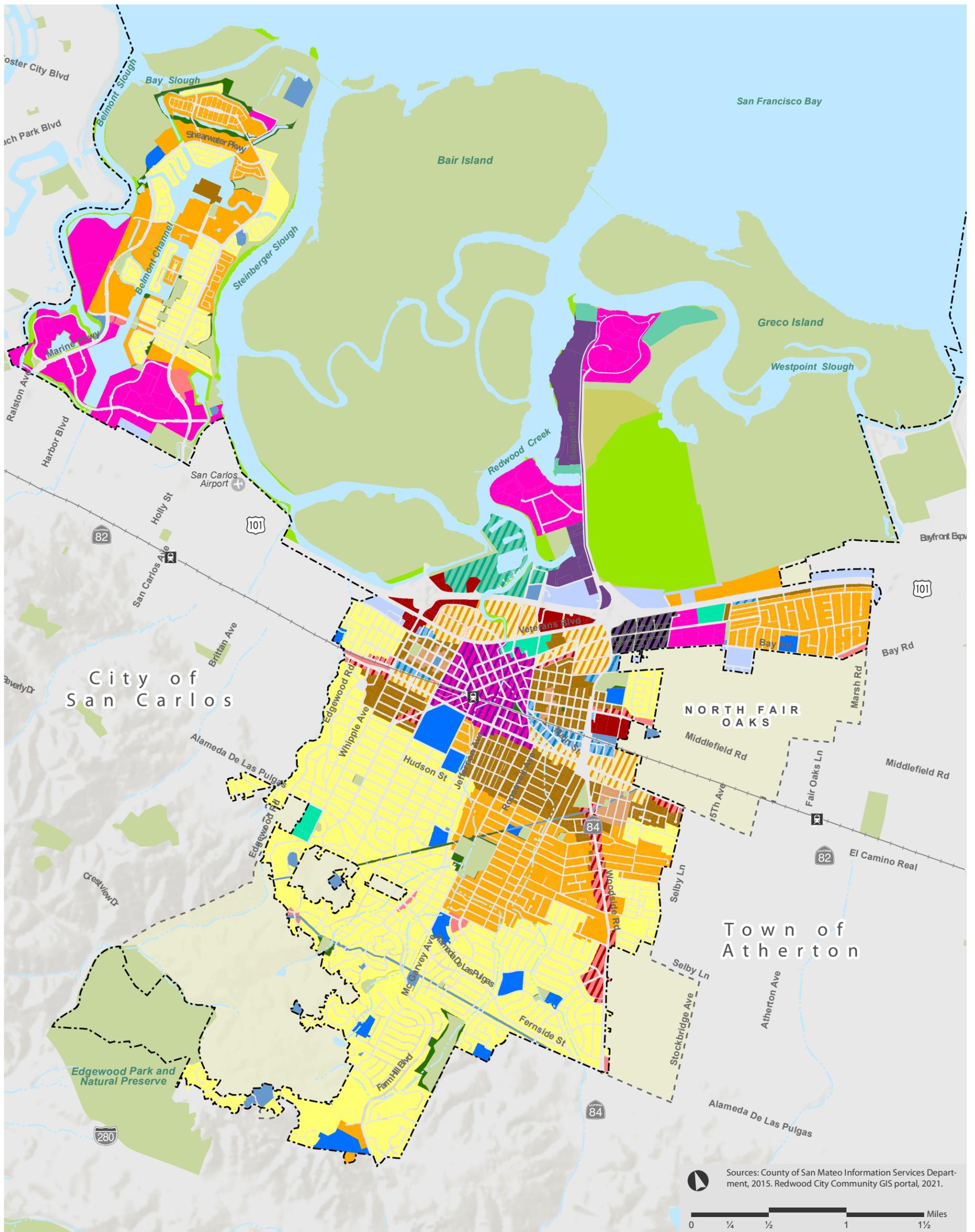
- Residential**
- Residential - Low (7 DU/AC Max.)
- Residential - Medium (20 DU/AC Max.)
- Residential - Medium High (30 DU/AC Max.)
- Residential - High (40 DU/AC Max.)
- Commercial**
- Commercial - Neighborhood (0.60 FAR Max.)
- Commercial - Regional (1.00 FAR Max.)
- Commercial - Office Professional/Technology (1.00 FAR Max.)
- Mixed Use**
- Mixed Use - Downtown
- Mixed Use - Corridor (60 DU/AC Max.)
- Mixed Use - Neighborhood (40 DU/AC Max.)
- Mixed Use - Waterfront Neighborhood (40 DU/AC Max.)

- Mixed Use - Live/Work (40 DU/AC Max.)
- Marina (20 DU/AC Max.)
- Industrial**
- Industrial - Light (0.75 FAR Max.)
- Industrial - Port Related (0.50 FAR Max.)
- Light Industrial Incubator Overlay (1.00 FAR Max.)
- Public/Quasi-Public**
- Hospital (2.00 FAR Max.)
- Schools
- Public Facility
- Park
- Open Space**
- Urban Reserve
- Preservation

Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- Railway and Stations
- San Mateo County Streets
- US Highway 101
- Channel, Rivers, and Streams
- Bay, Harbor, and Sloughs

**Figure 3-3:
Current General Plan
Land Use Map**



Sources: County of San Mateo Information Services Department, 2015. Redwood City Community GIS portal, 2021.



General Plan Land Use

Residential

- Residential - Low (7 DU/AC Max.)
- Residential - Medium (20 DU/AC Max.)
- Residential - Medium High (30 DU/AC Max.)
- Residential - High (40 DU/AC Max.)

Commercial

- Commercial - Neighborhood (0.60 FAR Max.)
- Commercial - Regional (1.00 FAR Max.)
- Commercial - Office Professional/Technology (1.00 FAR Max.)

Mixed Use

- Mixed Use - Downtown
- Mixed Use - Corridor (80 DU/AC Max.)
- Mixed Use - Neighborhood (60 DU/AC Max.)
- Mixed Use - Waterfront Neighborhood (40 DU/AC Max.)

- Mixed Use - Live/Work (60 DU/AC Max.)
- Marina (20 DU/AC Max.)

Industrial

- Industrial - Light (0.75 FAR Max.)
- Industrial - Port Related (0.50 FAR Max.)
- Light Industrial Incubator Overlay (1.00 FAR Max.)

Public/Quasi-Public

- Hospital (2.00 FAR Max.)
- Schools
- Public Facility
- Park

Open Space

- Urban Reserve
- Preservation

Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- R Railway and Stations
- San Mateo County Streets
- 101 US Highway 101
- Channel, Rivers, and Streams
- Bay, Harbor, and Sloughs

**Figure 3-4:
Proposed General Plan
Land Use Map**

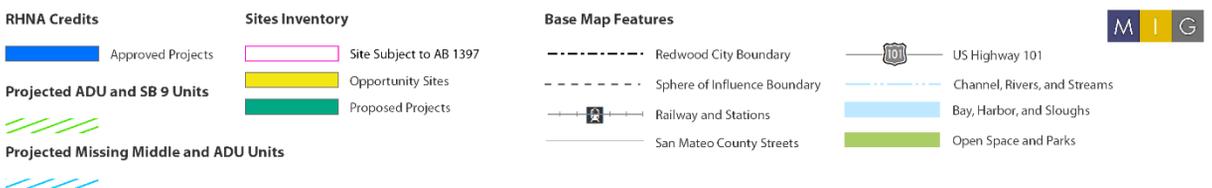
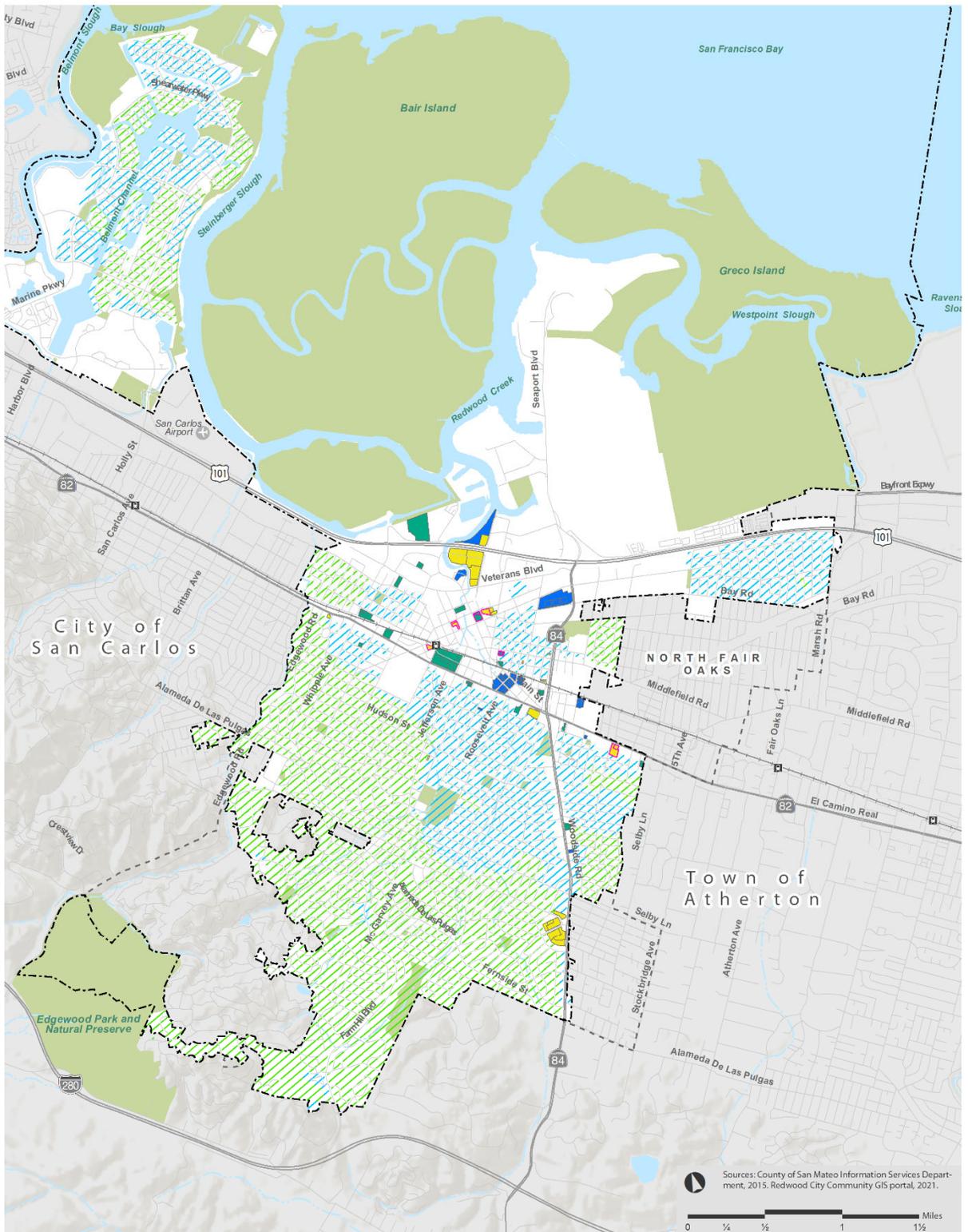


Figure 3-5: Housing Sites to Meet the RHNA

3.3 Existing Conditions

3.3.1 Environmental Setting

The Focused General Plan Update will encompass the entirety of the City of Redwood City plus its SOI (the Planning Area). The Planning Area is bounded on the west by the cities of San Carlos and Foster City, the cities of Atherton and Menlo Park on the east, the Town of Woodside and unincorporated San Mateo County on the south, and by San Francisco Bay to the north.

The Planning Area contains urban areas and open space, with native habitats. The majority of the native habitat consists primarily of baylands, including Bair Island, Bird Island, Greco Island, the Redwood Shores Lagoon, and the salt crystallization ponds on the Cargill property. The bayland islands are preserved for their natural resources and are managed by the U.S. Fish and Wildlife Service (USFWS) as part of the Don Edwards National Wildlife Refuge. The Emerald Hills and Farm Hill neighborhoods in the southern portions of the Planning Area are low density residential communities containing scattered areas of native vegetation on private property. The southern, hilly upland portions of the Planning Area include the Edgewood County Park and Natural Preserve and Stulsaft Park.

Topographically, the Planning Area ranges from sea level along San Francisco Bay, increasing elevation gradually from east to west. According to the State Department of Finance (DOF), the estimated population of Redwood City in 2020 was 85,182, which makes it the third largest among San Mateo County cities (DOF, accessed February 2022). The city's housing stock consists of an estimated 31,536 total units as of 2020. The City identifies 40,418 employees in the City as of 2018. Redwood City's urban development is part of the 2010 U.S. Census-defined San Francisco--Oakland, urban area, a densely developed region with an area of 523.6 square miles and an estimated total population of 3,281,212. The region encompasses residential, commercial, and other non-residential urban land uses of the San Francisco Bay Area and adjoining urbanized areas (Census Data, accessed February 2022). Major regional transportation routes that carry vehicular traffic (personal vehicles, freight, and buses) are within City borders. Major existing transportation facilities include U.S. Highway 101 (U.S. 101), Interstate 280 (I-280), State Route 84 (Woodside Road within the City), and State Route 82 (El Camino Real), Caltrain, the Port of Redwood City, and the San Carlos Airport.

3.3.2 Land Uses

The Planning Area consists of a variety of existing land uses that fall in to six general categories: residential, commercial, and industrial, public and institutional, parks and open space, undeveloped (vacant), and other. The Existing General Plan Land Use Map is shown as Figure 3-3. Adopted plans within the Planning Area include the Downtown Precise Plan (DTPP), Stanford in Redwood City Precise Plan, North Main Street Precise Plan, Peninsula Park Precise Plan, Marina Shores Village Precise Plan, Non-Final Inner Harbor Specific Plan, Kaiser Medical Center Precise Plan, and Sequoia Hospital Precise Plan.

3.4 Project Objectives

The Project includes the following objectives for the long-term growth and enhancement of the community:

(1) New Housing. Comply with State Laws related to Housing Elements by facilitating new housing growth throughout the Planning Area in response to the region’s need for more affordable and market rate housing, as well as develop housing solutions to meet the City’s new Regional Housing Needs Allocation (RHNA).

(2) Housing Choice. Meet Housing Needs through a Variety of Housing Choices. Respond to the broad range of housing needs in City by supporting a mix of housing types, densities, affordability levels, and designs.

(3) Healthy Neighborhoods. Promote healthy neighborhoods that incorporate best practices related to land use, racial equity, mobility, air quality, housing, affordability, safety, environmental justice, community services, and design.

(4) Equity. Combat housing discrimination, eliminate racial bias, undo historic patterns of segregation, and lift barriers that restrict access in order to foster inclusive communities and achieve racial equity. Identify communities most vulnerable to climate change impacts and establish new goals, policies, and programs for equitable public safety, emergency preparedness, response and recovery.

(5) Fair Housing. Affirmatively further fair housing opportunities and promote housing throughout the community for all, including promoting, and assisting in the development of housing that meets the needs of special needs communities in Redwood City.

(6) Inclusivity. Comply with State Laws related to Environmental Justice by engaging residents and stakeholders to ensure equitable and inclusive processes, policies, investments, and service systems. Develop strategies to help residents in disadvantaged communities have access to healthy foods, parks, mobility options activity, public programs, and safe homes.

(7) Technology. Embrace technology and innovative practices to create smart, sustainable communities and adaptable infrastructure systems.

(8) Safety. Comply with State Laws related to Safety Elements by establishing new General Plan goals, policies, and programs to include climate change adaptation and resiliency planning, sea level rise, and additional wildfire measures, and provide direction to improve emergency preparedness, response, and recovery.

(9) Adaptive and Resilient Communities. Develop strategies that help people, infrastructure, and community assets adapt to and recover from evolving climate threats and vulnerabilities, and from natural and human-caused hazards.

(10) Conformance with Regulatory Requirements. Develop a Safety Element that meets all the requirements under Government Code Section 65302(g), and which reflects State and local regulations for specific hazards, with the intent of protecting people and key infrastructure from damage resulting from an environmental hazard.

3.5 Project Characteristics

The Project includes goals, policies, and programs that will provide City staff and discretionary bodies with a foundation for decisions for long-range planning related to physical development and public services. The Project is intended to achieve the planning goals set forth in the Housing, Public Safety, Land Use (Built Environment), Building Community, and Natural Resources Elements over the Project's planning horizon. These amendments establish the development potential for various land uses and serve as a policy guide for determining the future physical development and community services in the Planning Area.

3.5.1 Summary of Proposed General Plan Amendments

A high-level summary of the key proposed General Plan text and map amendments that would occur as a result of the Project is included below. Other amendments not listed below may be required to ensure consistency and up-to-date information in accordance with the updated Housing Element.

General Plan Map Amendments

- Amend areas identified in the Zoning Map Amendments to Mixed Use Corridor and Mixed-Use Neighborhood.
- Change General Plan to be consistent with Zoning as demonstrated on the map in Figure 3-4.

General Plan Text Changes

- Adopt a new Housing Element.
- Amend Land Use Element (Built Environment) to:
 - Remove height limitations from all residential and mixed-use land use categories
 - Update policies to be consistent with newly adopted Housing Element
 - Update Mixed Use land use designations to increase density by 20 du/acre (except for mixed use waterfront)
- Amend Public Safety Element to address the following:
 - Fire risk for land classified as very high fire hazard severity zones
 - Sea level rise
 - Climate adaptation strategies

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- Vulnerability assessment
- Local hazard mitigation
- Resiliency strategies
- Identification of areas that may require additional evacuation routes?
- Environmental Justice goals, policies and programs. Local jurisdictions are required to incorporate Environmental Justice goals, policies, and programs in their general plan if they have a disadvantaged community (“Environmental Justice community”) and are concurrently adopting or revising two or more elements of their general plan. Redwood City has identified three Environmental Justice communities and is proposing to both amend existing goals, policies, and programs as well as add new goals, policies, and programs to address environmental justice needs in the Natural Resources Element and throughout various General Plan Elements as appropriate.

3.5.2 Zoning Code Text and Map Amendments and Municipal Code Amendments

The above updates to various General Plan Elements will require associated Zoning Code amendments, including rezoning additional areas to a Mixed-Use Zoning District and rezoning areas with mobile home parks to allow mobile homes by right. Zoning text amendments would include removing the residential limit, or “cap,” for the Downtown Precise Plan, thereby increasing the densities and heights permitted in existing Mixed Use zoning districts.

Other Zoning Code amendments include providing additional market rate and below market rate housing in both a mixed-use and a stand-alone residential structure by creating a new Mixed Use Corridor Subdistrict designation. This new Mixed Use Corridor Subdistrict would be located on Woodside Road and applied to the areas currently designated as Mixed Use.

The Mixed-Use Corridor designation would be applied to new areas including Veterans Boulevard. Current designations including Commercial Office, Industrial Park, and Industrial Restricted would be updated to Mixed Use Corridor to provide additional market and below-market rate housing.

Zoning constraints would be lessened in order to build medium-density housing in the R-2 through R-5 Zoning districts. The minimum lot size would be reduced and minimum lot widths and sized would be standardized. The requirement for covered parking in all areas zoned R-2 through R-5 would also be removed.

Mobile homes would be preserved. The City would continue to assure the presence of mobile homes and mobile home parks by consistently designating existing mobile home park parcels as Mobile Home (MH) along Bayshore Road.

To provide below market rate and market rate housing, the allowed densities for three Mixed Use designations would be increased along El Camino Real, Veterans, and Woodside. The designations include the following:

- Mixed Use Transitional from 40 to 60 units/acre

- Mixed Use Neighborhood from 40 to 60 units/acre
- Mixed Use Corridor from 60 to 80 units/acre

These amendments would implement specific goals and policies to promote housing, address public safety, particularly as it relates to changing climate influences, streamline housing approvals, affirmatively further fair housing, incorporate Environmental Justice goals and policies, and implement the goals and policies of other General Plan Elements, including Housing, Public Safety, Land Use (Built Environment), Building Community, and Natural Resources.

A high-level summary of the proposed Zoning Code text and map changes is provided below:

Zoning Code Amendments

- R-2 through R-5 (Missing Middle Amendments)
 - Eliminating minimum lot width standards
 - Reducing minimum lot size standards to be consistent with maximum allowed zoning density
 - Reduce required parking, eliminate covered parking requirement and allow parking in required setbacks
 - Reduce required open space to 300 sq. ft./unit
 - Other minor associated amendments to increase ability of middle housing to be constructed.
- Uses Allowed in R districts and Mixed Use Districts
 - Allow multi-family dwellings in R-2 by right (no Planned Development Permit will be required, but an Architectural Permit will continue to be required)
 - Prohibited stand-alone parking lots and garages in the residential district serving adjacent industrial or commercial zones for customer or employee parking where previously conditionally permitted. This is not a good use of residential land. Existing situations would be legal nonconforming.
 - Eliminated requirement that funeral homes be immediately adjacent to a parcel devoted to a public or quasi-public use.
 - Allow Live/Work in the R-5 District (prohibited elsewhere consistent with current requirements)
 - Change “Rooming House” to Group Home Residential and allow conditionally in R-2 and R-3 in addition to the currently allowed R-4 and R-5.
 - Make clarifying changes to terms and definitions for care facilities and specialty housing
 - Change rest homes/nursing homes to Senior Residential Care and conditionally permit in R-2 and R-3 in addition to R-4 and R-5.

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- Add new definition for General Residential Care (for adults age 59 or less) and permit similarly to Senior Residential Care.
- Add new category of Adult Day Programs and allow in R-4 and R-5 consistent with rest homes/nursing homes. This is a license type by the state and may be more common.
- Use the “Skilled Nursing” category described in mixed-use districts and permit in R-4 and R-5 with a Use Permit (it’s like an intense nursing home).
- Break up the Public/Quasi Public land use category into Schools, Hospitals, Assembly and Meeting Facilities, Open Space and Public Uses.
 - Remove minimum site size requirement of 40,000 sq. ft.
 - Clarify that Schools are permitted conditionally in all R districts
 - Hospitals are permitted conditionally in the R-4 and R-5 districts. Too intense for the lower-density districts.
 - Assembly and Meeting Facilities are permitted conditionally in all R districts
 - Clarifying that public uses are permitted by right - Local pre-emption.
- Zoning Text Amendments to increase density allowed in Mixed Use Districts by 20 du/acre for the Mixed Use Corridor, Mixed Use Neighborhood, and Mixed Use Transitional and increase permitted height by up to 25 ft.
- Downtown Precise Plan and General Plan Amendments to remove cap on residential units in the Downtown Precise Plan.
- Other miscellaneous amendments for clarity, consistency, and that support proposed General Plan programs, including but not limited to:
 - Reduced parking for residential uses
 - Permitting 100% affordable housing by right or in a streamlined manner
 - Streamlining permitting processes for residential and mixed use developments (2/3 residential)
- Municipal Code Amendments
 - Removing requirement for undergrounding overhead utility lines in conjunction with residential construction/subdivision
 - Reducing the minimum condominium size project to 2 units from the existing minimum of 5 units.

Zoning Map Amendments

- Rezone CO districts along Veterans and Woodside to Mixed Use Corridor.
- Rezone portions of Woodside to Mixed Use Neighborhood.
- Rezone miscellaneous properties to ensure consistency with the General Plan.

3.5.3 Regional Housing Needs Allocation

All cities and counties in California are required to meet their fair share of the State’s housing needs. The planning process for accomplishing this is typically implemented every eight years through an update of the Housing Element of each jurisdiction’s General Plan, which is a long-range policy document mandated by the State and further required to be reviewed and certified by the State of California’s Housing and Community Development Department (HCD).

California State law requires that each city and county have land zoned to accommodate its fair share of regional housing needs over the course of the Housing Element planning period. The Housing Element must identify adequate sites for housing, including rental housing, factory-built housing, mobile homes, and emergency shelters, and must make adequate provision for the existing and projected needs of all economic segments of the community. The RHNA for the ABAG region is divided into four income categories: very low, low, moderate, and above moderate. Redwood City’s RHNA for the 2022-2031 planning period is 4,588 housing units, with the units distributed among the four income categories as shown in Table 3-2. Through the Housing Element process, Redwood City will ensure that it has sufficient capacity under existing land use policy to meet its 2022-2031 RHNA obligations.

State law requires the City to plan for 100% of RHNA goals. However, targeting 150% of RHNA helps make Redwood City eligible for a “pro-housing” designation, which would allow the City to be more competitive for certain State grants. Planning for more housing than the RHNA minimum would also allow for flexibility in future development and create additional opportunities to address the jobs/housing imbalance. It would also increase opportunities for affordable housing to be constructed, benefitting low-income households. For these reasons, the City is targeting at least 150 percent of the required RHNA, or approximately 7,000 homes.

**Table 3-2:
Regional Housing Needs Allocation 2023-2031**

Income Group	% of County AMI	Number of Units Allocated	Percent of Total Allocation
Very Low ¹	0-50%	1,115	24%
Low	>50-80%	643	14%
Moderate	>80-120%	789	17%
Above Moderate	120%+	2,041	44%
Total	--	4,588	100%

Note: Pursuant to AB 2634, local jurisdictions are also required to project the housing needs of extremely low-income households (0-30% AMI). In estimating the number of extremely low-income households, a jurisdiction can use 50% of the very low-income allocation or apportion the very low-income figure based on Census data. Using the 50/50 calculation, the City’s very low-income RHNA of 1,115 units can be split into 558 extremely low-income and 557 very low-income units.

To meet state law requirements and provide sufficient capacity for housing development, the proposed Housing Element includes goals, policies, and programs. supported by consistent zoning standards. The Appendix B contains a full set of the Housing Element’s proposed goals,

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policies, and implementation programs. The key goals, policies, and programs are summarized as follows:

- Increase the Capacity for New Housing Throughout the City by:
 - Rezoning commercial areas to Mixed Use Corridor zoning district,
 - Increasing densities and building heights in existing Mixed Use zoning districts and removing residential cap in Downtown, and
 - Amending the Zoning Code to increase the ability for middle housing (duplexes, triplexes and small apartments) to be built in established multifamily residential zoning districts.
- Preserve and produce affordable housing by:
 - Continuing to implement the affordable housing ordinance,
 - Continuing to provide subsidies, as funds are available, to assist in the development of affordable housing units,
 - Pursuing the adopted Anti-Displacement Strategy which includes recommendations for preserving unsubsidized affordable housing units and mobile home parks, and
 - Partnering with community organizations to produce and preserve affordable housing.
 - Revising affordable housing ordinance, including supporting development of LIHTC financed housing projects and updating ordinance as part of a countywide nexus study.
- Encourage a Wider Variety of Home Types by:
 - Updating requirements to make it easier to permit supportive housing, group homes and care facilities for seniors and non-seniors, and
 - Making it easier to construct middle housing (duplexes, triplexes, and small apartments) in residential zoning districts.
- Increase Housing at All Income Levels in High Resource Neighborhoods by:
 - Implementing SB 9 duplexes in single family neighborhoods,
 - Continuing to encourage accessory dwelling units in single family neighborhoods,
 - Increasing middle housing opportunities, and
 - Studying increasing densities (upzoning) in single family neighborhoods.
- Streamline Review by:
 - Creating objective design standards for residential projects, and
 - Exploring methods of shortening permitting times.
- Supporting Extremely Low Income (ELI) Housing by:

- Encouraging flexible building types and configurations, including single room occupancy developments (SROs), group homes, and other types of housing for extremely low- income residents.
- Updating requirements to make it easier to permit supportive housing, group homes and care facilities for seniors and non-seniors.
- Pursuing the adopted Anti-Displacement Strategy which includes recommendations for preserving unsubsidized affordable housing units and mobile home parks.
- Partnering with community organizations to produce and preserve affordable housing.
- Tracking construction of ELI units in the City’s Annual Progress Report and online dashboard.
- Prioritizing a portion of affordable housing funds to assist in the development of housing affordable to extremely low-income households.
- Updating the Nexus Study, with considerations for incentivizing ELI units as part of the affordable housing ordinance.
- Support Housing for People with Disabilities by:
 - Considering a universal design ordinance that may better address housing needs for people with disabilities, and
 - Publicizing information about the City’s Reasonable Accommodations ordinance.
- Reduce Costs by:
 - Considering reduction in parking requirements for residential projects, particularly those near transit and retail services,
 - Allowing in-lieu fees for undergrounding utilities associated with residential projects, and
 - Encouraging innovation in construction technology such as mass timber and prefabricated building.

3.5.4 Public Safety Element

State legislation that went into effect since the last update of the City’s Public Safety Element (SB 379, SB 1035, SB 1241) has placed new requirements on how and when cities need to update the Safety Element. Efforts to streamline state and local planning include allowing a city to incorporate by reference the local hazard mitigation plan and other climate adaptation and resilience planning documents in the General Plan. The Redwood City Public Safety Element has been updated as necessary as part of the Project to address climate adaptation and resiliency strategies and ensure consistency with the 2021 Multijurisdictional Local Hazard Mitigation Plan.

The Public Safety Element contains goals, policies, and implementation programs to reduce the risks associated with hazards. The proposed goals, policies, and programs focus on building the resilience of the community and the built environment against hazards, including geologic and

seismic hazards, flooding, wildfire, poor air quality and climate change effects, hazardous materials, and aviation hazards from the San Carlos Airport. The Public Safety Element also address crime prevention and police services, fire prevention and suppression services, and disaster preparedness and evacuation. The Public Safety Element’s proposed implementation programs consist of procedures, permits, agreements, and ordinances; special projects; outreach and education programs; and interagency and other organizations consultation. Appendix B contains the project’s proposed changes to the goals, policies, and implementation programs.

3.5.5 Environmental Justice Goals, Policies, and Objectives

Government Code section 65302 requires that the City either add an Environmental Justice Element or adopt related goals, policies, and objectives integrated into other General Plan elements if the City revises two or more General Plan elements concurrently. The purpose of such policies is to identify and address “disadvantaged communities” within the City which are disproportionately affected by environmental pollution and other hazards. The Project therefore proposes to identify goals, policies, and objectives to be integrated throughout the General Plan which accomplish the following:

- Reduce the unique or compounded health risks in disadvantaged communities by means that include, but are not limited to, reducing pollution exposure; improving air quality; promoting public facilities, food access, safe and sanitary homes, and physical activity.
- Promote civic engagement in the public decision-making process.
- Prioritize improvements and programs that address the needs of disadvantaged communities.

3.5.6 Built Environment Element

The proposed Focused General Plan Update has a planning horizon year of 2040, as general plans are required to project a long-term time frame (Government Code Section 65300) for growth typically covering a 20-year period. However, an interim planning horizon year of 2030 was also evaluated for consistency with the 6th Cycle 2022-2030 RHNA Projection Period in accommodating the RHNA of 4,588 housing units within the Housing Element planning period, between 2023 and 2031. Buildout under the proposed Project has the potential to result in up to 7,003 additional dwelling units between 2023 and 2031. Figure 3-4 General Plan Proposed Land Use shows the proposed Land Use Policy Plan under the Project. Table 3-3 (Potential Focused General Plan Update Housing Unit and Population Growth) provides a comparison of existing 2020 conditions and potential future 2040 conditions.

**Table 3-3:
Potential Focused General Plan Update Housing Unit and Population Growth
2020-2040**

Development Indicators	Existing Conditions (2020)	Future Buildout Conditions (2040) ^a	Existing to Buildout Change (Numbers)	Existing to Buildout Change (Percentage)
Housing Type				
Single Family Dwelling Units	22,735	20,428	-2,307	-10.15%
Multiple Family Dwelling Units	16,358	29,436	+13,078	+79.95%
Accessory Dwelling Units	-	506	+506	-
Total	39,093	50,370	+11,277	-
Population				
Single Family Units	69,165	62,147	-7,018	-10.15%
Multiple Family Units	37,406	67,312	+29,906	+79.95%
Group Quarters	1,160	1,160	0	-
Accessory Dwelling Units	-	728	+728	-
Total	107,731	131,347	+23,616	-
Source: MIG, Inc., May 26, 2022				
Notes: A “-“ indicates data is either not available or the development indicator is not applicable.				
^a These numbers include the Housing Element RHNA cycle to 2031 and include City limits plus the sphere of influence.				

The General Plan’s Built Environment Element shapes the physical environment of Redwood City through comprehensive guidance on urban form and land use, circulation, economic development, historic resources, and infrastructure. The Project includes updating the General Plan’s Urban Form and Land Use Element to reflect changes in the Housing Element and Public Safety Element, and the addition of Environmental Justice goals, policies, and actions incorporated throughout the General Plan. Appendix B contains the Project’s proposed changes to the Built Environment Element and Building Community Element goals, policies, and programs.

3.6 Intended Uses of the Program EIR

The planning framework proposed in the Project would not result in the immediate construction of any new development nor entitlement of any new project. All new development within the City will continue to be subject to the City’s permitting, approval, and public participation processes. Elected and appointed officials along with City staff will review subsequent project applications for consistency with the General Plan, applicable adopted plans, the Zoning Code, and the Municipal Code, and will prepare appropriate environmental documentation to comply with CEQA and other applicable environmental requirements. Discretionary actions required to approve the Project would include:

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- Certification of the Project’s Program Final EIR.
- Adoption of a Mitigation Monitoring and Reporting Program.
- Adoption of the proposed General Plan Amendments, including map and text amendments.
- Adoption of proposed Zoning Code and Municipal Code text changes, and Zoning Map changes.

Pursuant to Section 15168 of the State CEQA Guidelines, this EIR is a Program EIR. The goals, policies, land use designations, implementation programs, and other substantive components of the General Plan and implementing sections of the Zoning Code and the Municipal Code comprise the “program” evaluated in this Program EIR.

Subsequent activities undertaken by the City and project proponents to implement the General Plan will be examined considering this Program EIR to determine the appropriate level of environmental review required under CEQA. Subsequent implementation activities may include, but are not limited to, the items listed below.

- Updating and approval of Precise Plans, Specific Plans, and other development plans and planning documents.
- Review and approval of future General Plan Amendments and zone changes.
- Approval of tentative maps, variances, conditional use permits, and other land use permits and entitlements.
- Approval of development agreements.
- Approval of facility and service master plans and financing plans.
- Approval and funding of public improvement projects.
- Approval of resource management plans.
- Issuance of permits and other approvals necessary for implementation of the General Plan.
- Issuance of permits and other approvals necessary for public and private development projects.

As the Lead Agency, the City also intends this Program EIR to serve as the CEQA-required environmental documentation for consideration by other Responsible Agencies and Trustee Agencies that may have limited discretionary authority over future project affected by the General Plan.

Following certification of this Program EIR and adoption of the General Plan by the lead agency (City of Redwood City), other agencies may use this Program EIR in the approval of subsequent implementation activities. These agencies may include, but are not limited, to those listed below.

Local Agencies

- County of San Mateo

Regional and State Agencies

- San Mateo County Local Agency Formation Commission (LAFCO)
- Association of Bay Area Governments (ABAG)
- Bay Conservation and Development Commission (BCDC)
- California Department of Fish and Wildlife (CDFW)
- California Department of Conservation
- California Department of Housing and Community Development (HCD)
- California Department of Transportation (Caltrans)
- California Department of Toxic Substance Control (DTSC)
- Regional Water Quality Control Board (RWQCB)
- Bay Area Air Quality Management District (BAAQMD)
- West Bay Sanitary District

Federal Agencies

- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Services (USFWS)

3.7 References

California State Department of Finance (DOF). Population and Housing Estimates, 2020. <https://www.dof.ca.gov/Forecasting/Demographics/Estimates/> [Accessed February 2022]

Land Use Data for City of Redwood City Built Environment Element.

United States Census. [census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/ua-facts.html](https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/ua-facts.html) [Accessed February 2022].

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4.1 Aesthetics

This EIR chapter provides a description of the existing visual resources within the City. It includes a discussion of the regulatory framework and identifies potential aesthetic impacts. Mitigation measures are described, if required.

4.1.1 Environmental Setting

Redwood City is within San Mateo County and is part of the wider San Francisco Bay Area. Most of the land within the Planning Area is developed and includes urban/suburban uses and open space areas with native habitats. The Planning Area includes a diverse urban landscape including public parks, waterfront development, hillside homes, historic residential neighborhoods, the Downtown mixed-use district, neighborhood commercial centers, port-related industrial uses, and office complexes.

The native habitat in the Planning Area consists primarily of baylands, including Bair Island, Bird Island, Greco Island, the Redwood Shores Lagoon, and the salt crystallization ponds on the Cargill property. The bayland islands are preserved for their natural resources and are managed by the U.S. Fish and Wildlife Service (USFWS) as part of the Don Edwards National Wildlife Refuge. The southern, hilly upland portions of the Planning Area include the Edgewood County Park and Natural Preserve, and Stulsaft Park. The Emerald Hills and Farm Hill neighborhoods in the southern portions of the Planning Area are low density residential communities containing scattered areas of native vegetation on private property.

Scenic Vistas

Scenic vistas are defined in this document as natural landscapes that provide views of unique flora, geologic or other natural features that are generally free from urban intrusions. Typical scenic vistas include views of mountains and hills, large, uninterrupted open spaces, and waterbodies.

The primary views of scenic vistas are provided in the southern and western portions of the Planning Area from the elevated hillside neighborhoods. Public views of scenic resources, including the San Francisco Bay and its associated baylands, sloughs, and marshes, and the urbanized San Francisco Bay Peninsula, are primarily available from four points within the elevated western hillsides, including the Easter Cross, Easter Bowl, Canada College and the Edgewood County Park. Scenic vistas from these locations show panoramic views of urban development, rural clusters among abundant vegetation, lakes, rock outcrops, the Santa Cruz Mountains, winding roads, and hills beyond the San Francisco Bay. From these viewpoints the entire Planning Area can be viewed, and beyond towards the forested side of the Santa Cruz coastal mountains. Scenic views of Bair Island are also available. While the majority of Bair Island consists of a vacant, open landscape, there are built facilities, such as utility corridors with overhead electric transmission lines that traverse the baylands and sloughs. The open landscape of Bair Island provides a visual break in the urban fabric of the Planning Area.

Scenic Resources

While a scenic vista consists of a complete viewshed, a scenic resource is the occurrence of a singular, visually appealing feature. Examples of the natural scenic resources include rock outcroppings, trees, prominent ridgelines, slopes and hilltops. As previously described, the Santa Cruz Mountains forms a significant scenic resource in the Planning Area, creating a distinguishable topographic feature that defines many of the views in the area. The San Francisco Bay is another notable scenic resource that can be seen from the Planning Area. Scenic resources can also be built, such as architecturally distinctive or historic buildings, historic points of interest, or historic roadways or highways.

Visual Character

In the downtown area of the City, commercial and residential buildings built during the 1850s and 1860s reflect popular Victorian Era design and construction.

By the end of World War II, the City's center of economic activity shifted from the historic Main Street and Broadway business center closer to new residential areas southwest of El Camino Real and along Woodside Road, as well as areas along U.S. 101. Development continued along this route as the highway was modernized into a freeway in the 1960s, El Camino Real was redesignated as State Route 82, and Woodside Road was redesignated as State Route 84.

Residential neighborhoods that formed around the City's historic core in the 1850s include those that are now considered a local historic district, such as the Mezesville Historic District. The Stambaugh-Heller Historic District, located southeast of historic Main Street, is within the City's second subdivision called "The Eastern Addition." The area contains the largest number of pre-1900 buildings in the City.

The visual character of the Planning Area varies by location as there are distinct districts and neighborhoods that exhibit their own character. Residential neighborhoods are located throughout the Planning Area. The City distinguishes these by typology, The neighborhood typologies in Redwood City include:

- Historic Influence Low Density Neighborhoods
 - In the early 1900s, properties between Arlington and Edgewood Roads, known as Wellesley Park or Edgewood Park, were subdivided. The subdivision featured curvilinear streets and a small circular park, which attracted new residents who built homes in a variety of architectural styles. These areas near the San Carlos border, as well as the Mount Carmel area surrounding historic Sequoia High School, feature distinctive architecture, tree-lined streets, and green space provided at parks and nearby schools.
- Historic Influence High Density Neighborhoods
 - Beginning in the 1850s, residential neighborhoods formed around the City's historic core. The Mezesville Historic District is located northwest of Downtown Redwood City. The district contains 19th century one- and two-story, wood-frame homes in a variety of architectural styles indicative of the time period. The

Stambaugh-Heller Historic District, southeast of historic Main Street, contains the largest number of pre-1900 buildings in Redwood City.

- **Post-War Neighborhoods**
 - The Post-War Neighborhood typology refers to neighborhoods of detached homes often organized within cul-de-sacs. Suburban in nature, these lower-density neighborhoods were designed to be automobile-oriented, with access from the street by a front driveway to an attached or detached garage. Post-War Neighborhoods were developed during the mid-20th century, following World War II. Auto-oriented commercial uses typically are located adjacent to the Post-War Neighborhoods.
- **Mixed Density Neighborhoods**
 - As development prototypes and standards changed over time, these neighborhoods provide a diverse mix of dwelling types that accommodate a variety of resident ages, incomes, family types, and family sizes.
- **Hillside Neighborhoods**
 - Redwood City's Hillside Neighborhoods represent a unique type of neighborhood, influenced by topography changes in the foothills of the Santa Cruz Mountains. This area focuses around two artificial lakes and the Elks Club, which includes a nine-hole golf course. A majority of the hillside area consists of unincorporated lands. The streets in the Hillside Neighborhoods are curvilinear, following the land. Most Hillside Neighborhoods have been developed with larger homes. At the edge of the neighborhoods is Edgewood County Park.
- **Master Planned Neighborhoods**
 - Master Planned Neighborhoods are large-scale, unified land developments. Master Planned Neighborhoods in Redwood City, such as Redwood Shores, include a mixture of land uses and dwelling types, as well as public and common open space in conjunction with residential uses. A Master Planned Development contains a hierarchy of street types to accommodate different levels of activity.
- **Waterfront Neighborhoods**
 - Waterfront Neighborhoods are considered extensions of the urbanism of Redwood City, with street grids of a similar scale as historic areas, with buildings fronting on those streets, and with convenient connections between adjacent projects.

Night Skies

The Planning Area is generally built out, with scattered open space and undeveloped parcels. Night skies are dominated by urban and suburban lighting in the more developed portions of the Planning Area. During the day, sunlight reflecting from roadways and structures is a primary source of glare, while nighttime light and glare consists of 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.

4.1.2 Regulatory Framework

State

California Scenic Highway Program

Created by the California Legislature in 1963, the Scenic Highway Program was established to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A scenic highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a City or County nominates an eligible scenic highway for official designation, it defines the scenic corridor, which is land generally adjacent and visible to a motorist on the highway. State Laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

Within San Mateo County, highway segments on Highways 1, 35, and 280 are officially designated as Scenic, and one highway segment on Highway 92 is eligible for listing as a scenic highway:

- Highway 1: 26.2 miles between Santa Cruz and Half Moon Bay
- Highway 35: 23 miles between Santa Cruz and Half Moon Bay
- Highway 92: Between Route 1 and I-280 near Crystal Springs Reservoir (eligible)
- Highway 280: 21.8 miles between the Santa Clara County Line and City of San Bruno

None of the above listed highway segments are within the City of Redwood City.

California Solar Shade Control Act

Under the California Solar Shade Control Act (Public Resource Code Sections 25980-25986), no property owner shall allow a tree or shrub to be placed or to grow so as to cast a shadow greater than ten percent at any one time between the hours of 10:00 AM and 2:00 PM over an existing solar collector used for water heating, space heating or cooling, or power generation on an adjacent property. These limitations apply to the placement of new trees or shrubs, and do not apply to trees and shrubs that already cast a shadow upon that solar collector. The location of a new solar collector is required to comply with local building and setback regulations but must be set back not less than five feet from the property line and must be no less than 10 feet above the ground.

Title 24 Outdoor Lighting Zones

The Building Energy Efficient Standards within Title 24 specify outdoor lighting requirements for residential and non-residential development. The intent of these standards is to improve the quality of outdoor lighting and help reduce 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. Different lighting standards are set by classifying areas by lighting zone. The classification is based on U.S. Census Bureau population

figures, and the areas can be designated as LZ0 (very low), LZ1 (low), LZ2 (moderate), LZ3 (moderately high), or LZ4 (high). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass. According to the U.S. Census Bureau, the entire Planning Area is defined as an urban area and is therefore designated as LZ3 per the California Energy Commission outdoor lighting zone classification standards.

Local

Downtown Precise Plan

The Downtown Precise Plan (DTPP) was adopted by the City Council on January 24, 2011, and was amended on September 10, 2012, July 22, 2013 and most recently on May 23, 2016. The DTPP describes the vision for the future of Downtown and establishes development regulations to address building orientation, historic resources, streets, building placement, parking, building heights, façade composition, architectural character and signs. In combination, these regulations address visual quality and aesthetics by 1) promoting downtown as an activity hub, 2) supporting preservation of historic resources, 3) creating great public space, 4) supporting employment activities, and 5) resulting in complete streets with a pedestrian focus.

Redwood City General Plan

The City's adopted 2030 General Plan contains the following goals and policies which address visual quality:

GOAL BE-8: Preserve the scenic beauty and quality homes that define Hillside Neighborhoods.

- Policy BE-8.1 Minimize the visual and environmental impact of development upon sensitive hillside areas.
- Policy BE-8.2 Provide connections to commercial uses, schools, trails, and local parks.
- Policy BE-8.3 Address oversized and out-of-scale residential development, including appropriate neighborhood building scale and compatibility.

GOAL BE-10: Encourage the development of pedestrian- and water-oriented mixed-use communities that provide public accessibility to the Bay.

- Policy BE-10.1 Require that Waterfront Neighborhoods provide public access along water edges, to public open spaces and trails, and to vista points as integral parts of neighborhood development.

GOAL BE-10.2: Allow for a diversity of unique housing types, including floating homes and live-aboard boats. Collaborate with interested stakeholders to enhance existing floating communities and to establish floating community best practices and standards.

- Policy BE-10.3 Ensure that development in Waterfront Neighborhoods considers and plans for potential impacts associated with climate change and sea level rise.

4.1 – Aesthetics

- Policy BE-10.4 Ensure that the design of waterfront neighborhoods does not have an undue adverse impact on the Port area or Port uses.
- Policy BE-10.5 Establish design guidelines specific to Waterfront Neighborhoods to ensure new development exemplifies quality architecture and responds to its location on the Bay.
- Policy BE-10.6 Require that development along the U.S. 101 frontage include design elements, landscaping, and signage that create a positive aesthetic condition, as viewed from the freeway corridor.
- Policy BE-10.8 Whenever possible, encourage new development in Waterfront Neighborhoods to take shape as extensions of the urbanism of Redwood City, with street patterns of a similar scale to historic areas, buildings fronting those streets, and with good connections between adjacent projects.
- Policy BE-23.9 Protect and enhance the natural environmental features in Redwood City. Preserve open space resources as visual, recreational, and habitat resources, finding creative ways to provide habitat areas and species protection.
- Policy BE-43.1 Support efforts to develop improved communications technology in a manner that minimizes visual and environmental impacts to the surrounding area, while benefiting government, business, education, and public safety

Goal BE-44: Preserve community aesthetics while providing for utility needs.

- Policy BE-44.1 Reduce the visual impact of aboveground and overhead utilities, including electric lines, by working with Pacific Gas and Electric Company (PG&E) to maximize opportunities to place utilities underground.
- Policy BE-44.2 Continue to require the placement of utilities underground with new development.
- Policy BE-44.3 Permit new freestanding telecommunications towers only when there are no feasible alternatives.
- Policy BE-44.4 Strengthen requirements for underground utilities in older sections of the City as part of redevelopment projects to address public safety issues and to improve the aesthetic quality of streets and neighborhoods.

Goal BE-37: Protect, preserve, restore, rehabilitate, and/or enhance historic resources.

- Policy BE-37.1: Enhance, restore, preserve, and protect, as appropriate, historic resources throughout the city.
- Policy BE-37.2: Preserve historic landmark structures, landscapes (including trees), trails, and sites that serve additional community needs, such as recreational open space and/or cultural needs.
- Policy BE-37.3: Encourage the retention and/or adaptive reuse of historic residential, commercial, and industrial buildings.

- Policy BE-37.4: Consider relocation of landmark structures to vacant sites within established landmark districts when no other alternative exists for their preservation, or if a particular structure is not protected by ordinance.
- Policy BE-37.5: Provide incentives, support, and guidance to the owners of designated historic landmark sites to preserve and rehabilitate structures.

Redwood City Zoning Ordinance

The zoning ordinance establishes city-wide setbacks, parking and sign standards, building height limits, and building densities that affect and public and private views. Additionally, there are specific plans that provide separate design and planning standards for development within the specific plan areas.

4.1.3 Significance Thresholds

Per the CEQA Guidelines and City General Plan and Downtown Precise Plan policy regarding potential impacts from shadows,¹ implementation of the Project would have a significant impact related to aesthetics if it would:

- a) Have a substantial adverse effect on a scenic vista;
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- c) 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 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;
- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area; or
- e) In the DTPP area and on properties immediately adjacent to the DTPP area, deviate from the DTPP building height, setback and step-back regulations designed to minimize shadow impacts (particularly on public parks, plazas, and open areas in the downtown) to preserve access to natural light and air and preserve historic character within the DTPP area.

¹Criterion (e) is derived from General Plan Policies and Downtown Precise Plan development regulations calling for consideration of shadows from proposed development projects.

4.1.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There Are No Relevant Proposed Policies r Programs In The Amended General Plan Elements That Would Avoid Or Reduce Significant Aesthetics Impacts.

4.1.5 Impacts and Mitigation Measures

This section describes potential aesthetics impacts and recommends mitigation measures, as needed, to reduce significant impacts.

Scenic Vistas

Impact AES-1 – Would the Project have a substantial adverse effect on a scenic vista?

Analysis of Impacts

An impact to scenic vistas would occur if individual projects within the Planning Area, result in the substantial degradation in the quality, or obstruction of, scenic views available from a recognized scenic vista. Views provided within the Planning Area are location-dependent and can vary from views of adjacent development to views of surrounding cities, the San Francisco Bay, or hills in the distance, such as the Santa Cruz Mountains. As stated in the Environmental Setting section above, the four most notable viewpoints for these scenic vistas are located in the elevated western hillsides, including the Easter Cross, Easter Bowl, Canada College and Edgewood County Park, where views of the Bay and the Santa Cruz Mountains are largely unobscured and are not expected to be affected by the Project.

Other viewpoints that provide views of the San Francisco Bay and Santa Cruz Mountains in the Planning Area can be, depending on location within the Planning Area, partially obscured by buildings, trees, telephone and power lines, cell towers, or other structures typical of an urban environment. Such obstructions are location-specific and are typical of a built/urbanized environment. It is not expected that the Project would substantially obscure or detract from existing scenic vistas.

Implementation of the Project would result in housing development on inventory sites within the City; most of these sites are in areas that currently include urban development. New development associated with the Project could result in taller and more dense development than currently exists at certain locations; however, this new development would be consistent with the urban character of the City. The existing architectural review procedures adopted by the City allow the City to evaluate development against the adopted General Plan, including Policy BE-8.1, which requires development within the sensitive hillside areas of the City to minimize visual and environmental impacts, and Policy BE-44.1, which requires the City to collaborate with PG&E to maximize utility line undergrounding to reduce the visual impact of aboveground and overhead utilities, including electric lines.

These goals and policies will help protect views along major corridors like El Camino Real, Woodside Road, Middlefield Road, Veterans Boulevard, and Broadway. Although implementation of the Project would, over time, result in more intensive and higher density uses, visual impacts

on scenic vistas would not be substantial, given that these views are already affected by the existing built environment, and the City is already largely built out. Therefore, Project impacts with respect to scenic vistas would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None Required

Scenic Resources/Scenic Highways

Impact AES-2 – Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Analysis of Impacts

There are no officially designated scenic highways, or highway segments that are eligible for designation as scenic within the City of Redwood City and there would be no direct impact on scenic highways in San Mateo County. The proposed housing sites associated with the Project are primarily clustered in the eastern portion of the Planning Area, while the closest scenic highway (I-280) is located west of the City.

Although the Project proposes future development which would result in more intensive and higher density uses, future development would not impede views within or from a state scenic highway because the closest State Scenic Highway is Interstate 280, approximately three miles west of the Planning Area. Moreover, impacts to scenic resources would not occur because the Project would not allow for development that is inconsistent with State and local regulations covering architecturally distinctive/historic buildings or historic points of interest. Therefore, implementation of the proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Project impacts would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Existing Visual Character

Impact AES-3 – In non-urbanized areas, would the Project 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 publicly accessible vantage point. If the project

is an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

Analysis of Impacts

The Project is located in an urbanized area—e.g., Redwood City. Individual projects within the Planning Area would be subject to the City’s underlying zoning, development, and architectural standards and would predominantly result in in-fill development. In locations where similar existing uses occur. The infill nature of development and existing architectural standards will limit visual change while preserving the characteristics of the neighborhoods in which the projects will be located.

While much of Redwood City is considered urban, there are areas designated as Parkland. The Project would avoid these areas as potential development sites. Project related buildout is anticipated to occur over an approximately 8-year period, and future development under the Project would occur primarily in the developed portions of the City. The Project would direct higher density development, typically consisting of larger buildings with more mass, away from the southern and western hillside areas from which viewpoints of important scenic resources are provided. Future development would comply with the General Plan’s adopted goal, policies, and implementation programs intended to preserve scenic beauty and maintain community aesthetics, as described under Impact AES-1. With the consistent application of updated City zoning standards and design requirements, future development would not substantially degrade the existing visual character or quality of the Planning Area and its surroundings. Project impacts would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Light and Glare

Impact AES-4 – Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Analysis of Impacts

Existing lighting within the Planning Area is typical for urbanized areas during nighttime hours and includes streetlights, traffic signals, security lighting around businesses and homes, auto headlights, and illuminated business signs. New uses and developments may result in an increase in the number of lighting sources currently within the Planning Area; however, given that the Planning Area is already developed, these increases would not be expected to be substantial.

With respect to glare, while future, individual development project components would include windows and other glass features and may include exterior metallic elements and trims (e.g.,

exterior staircases associated with parking structures, shade structures for retail developments, residential balcony railings), these elements would be consistent with existing development in the Planning Area with implementation of the City’s architectural review process.

Lighting and building materials and designs for future development would be subject to review and approval by the City prior to approving building permits to ensure that new sources of lighting are compatible with design objectives, performance standards, and code requirements. The impacts due to light and glare would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Shadows

Impact AES-5 – Would the Project deviate from the DTPP building height, setback and step-back regulations designed to minimize shadow impacts (particularly on public parks, plazas and open areas in the downtown) to preserve access to natural light and air and preserve historic character within the DTPP area?

Analysis of Impacts

Potential development within the DTPP area could result in an increase in shadows cast on neighboring properties and public spaces. Community concerns regarding increases in shadows from development have been addressed by standards and regulations in the DTPP to preserve access to natural light and air and also to preserve the historic character within the DTPP area. Future development under the Project occurring within the DTPP area would be required to comply with DTPP standards and regulations, including preparation of site-specific shadow simulations, which would ensure that impacts on light-sensitive uses and spaces, such as shadow-sensitive Downtown public open space areas or solar sensitive portions of residential parcels outside but adjacent to the DTPP area, would not be substantially adversely affected by new development. Therefore, potential shadow impacts within the DTPP would be less-than-significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.1.6 References

California Codes, Public Resource Code Sections 25980-25986. 2022. Web: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=15.&title=&part=&chapter=12.&article=. [Accessed July 2022]

City of Redwood City. 2022. Redwood City General Plan Built Environment, Historic Resources. Web: <https://www.redwoodcity.org/home/showpublisheddocument/5103/635782756595400000> [Accessed July 2022].

City of Redwood City. 2022. Redwood City General Plan Built Environment, Urban Form and Land Use. Web: <https://www.redwoodcity.org/home/showpublisheddocument/15378/637387076798700000> [Accessed July 2022].

4.2 Agriculture and Forestry Resources

This EIR chapter describes the existing agricultural and forestry resources in the Planning Area and provides a description of the applicable regulatory framework. An analysis of potential impacts associated with implementation of the proposed Project is presented and mitigation measures are identified, if required.

4.2.1 Environmental Setting

Agricultural Resources

The Planning Area does not include any existing agricultural land uses (City of Redwood City 2010). The Planning Area includes mostly urban/suburban uses, except for designated park areas, which are designated as Open Space - Preservation in the General Plan and do not include agricultural uses.

Forest Resources

Forest land is defined in Public Resources Code Section 12220(g) as “land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.” There are no existing portions of the Planning Area dedicated to the conservation and protection of agricultural and forestry resources.

4.2.2 Regulatory Framework

State

Farmland Mapping and Monitoring Program

Important farmland maps are compiled by the California Department of Conservation’s (DOC) Farmland Mapping and Monitoring Program (FMMP), pursuant to the provisions of Section 65570 of the California Government Code. These maps and programs utilize data from the USDA Natural Resource Conservation Service (NRCS) soil survey and current land use information to monitor conversion of important farmland to other uses. The majority of the Planning Area has been mapped by the DOC and is designated as Urban and Built Up.

California Land Conservation Act/Williamson Act Contract Program

The California Land Conservation Act of 1965, also known as the Williamson Act, was adopted in 1965. This voluntary program allows local governments to enter into contracts with private landowners for the purpose of having their property assessed on the basis of its agricultural production rather than at the current market value. The property owner is thus relieved of having to pay higher property taxes, resulting from conversion of nearby lands to urban uses as long as the contracted land remains in agricultural or related open space use. The purpose of the

4.2 – Agriculture and Forestry Resources

Williamson Act is to encourage property owners to continue to farm their land with a tax incentive, and to prevent the premature conversion of farmland into non-agriculture use. There are no Williamson Act contracts within the Planning Area.

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE enforces the laws that regulate logging on privately-owned lands in California. The Forest Practice Act was enacted in 1973 to ensure that logging is conducted in a manner that preserves and protects fish, wildlife, forests and streams. The State Board of Forestry and Fire Protection enacts and enforces additional rules to protect these resources. CAL FIRE ensures that private landowners abide by these laws when harvesting trees. Although there are specific exemptions in some cases, compliance with the Forest Practice Act and Board rules apply to all commercial harvesting operations for landowners. A Timber Harvesting Plan (THP) is the environmental review document submitted by landowners to CAL FIRE outlining what timber is proposed to be harvested, how it will be harvested, and the steps that will be taken to prevent damage to the environment.

4.2.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to Agriculture and Forestry if it would:

- a) 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;
- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- c) 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);
- d) Result in the loss of forest land or conversion of forest land to non-forest use; or
- e) 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.

4.2.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Agriculture and Forestry impacts.

4.2.5 Impacts and Mitigation Measures

This section describes potential impacts related to agricultural resources, timberland, and forest land.

Convert Farmland

Impact AG-1 – Would the Project 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 nonagricultural use?

Analysis of Impacts

The Planning Area is a developed area with urban and suburban uses. According to the DOC's Important Farmland Finder, the entire Planning Area is designated as "Urban and Built Up" and there is no land in the Planning Area considered Prime Farmland, Farmland of Statewide Importance, or Unique Farmlands (DOC 2022a).

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

None required.

Williamson Act Conflict

Impact AG-2 – Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Analysis of Impacts

There are no areas within the Planning Area zoned for agricultural use and there are no Williamson Act contracts within the Planning Area (DOC 2022b).

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None required.

Conflict with Forest Land or Timberland Zoning

Impact AG-3 – Would the Project 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))?

Analysis of Impacts

The Planning Area is designated primarily as Urban and Built Up land and landscaping contains mostly ornamental trees, grasses, and shrubs common to urbanized areas in the region. There are no areas identified as timberland zoned Timberland Production within the Planning Area.

The proposed Project would not allow for any development of forest land, timberland, or timberland zoned Timberland Production that is not already allowed under the existing General Plan. Additionally, the Housing Element Update does not identify any Opportunity Site in areas within the City that could meet the definition of forest land. The Project would not change the zoning of the open space or forest lands in the City which is currently designated for open space. The proposed Project would not conflict with existing zoning for forest land, timberland, or Timberland Production.

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None required.

Loss or Conversion of Forest Land

Impact AG-4 – Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

Analysis of Impacts

The proposed Project would not allow for any development in forest land that is not already allowed under the existing General Plan. Additionally, the Housing Element Update does not identify any Opportunity Site in areas within the City that could meet the definition of forest land. The Project would not change the zoning of the open space or forest lands in the City which is currently designated for open space. Implementation of the proposed Project would not result in a loss of forest land or conversion of forest land to non-forest uses.

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None required.

Other Changes

Impact AG-5 – Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?

Analysis of Impacts

Please refer to analyses under Impact AG-1 through AG-4 above. The Planning Area is largely developed with urban and suburban uses. There are no farmland areas within the City, and the Housing Element Update does not identify any Opportunity Site in areas within the City that could meet the definition of forest land. Implementation of the Project would not result in the conversion of farmland to non-agricultural uses or the conversion of forest land to non-forest use.

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None required.

4.2.6 References

California Department of Conservation (DOC). 2022a. Farmland Mapping and Monitoring Program: Important Farmland Finder. Web: <https://maps.conservation.ca.gov/DLRP/CIFF/>. [Accessed July 2022].

California Department of Conservation (DOC). 2022b. Williamson Act Program: Reports and Statistics. Web: https://www.conservation.ca.gov/dlrp/wa/Pages/stats_reports.aspx. [Accessed July 2022].

City of Redwood City. 2010. Redwood City General Plan Natural Resources Element. Web: <https://www.redwoodcity.org/home/showpublisheddocument/5111/635782756606100000> [Accessed July 2022].

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4.3 Air Quality

This EIR chapter provides information on the environmental and regulatory air quality setting of the Planning Area and evaluates the potential regulated air pollutants emissions that could be generated by construction and operation of projects associated with implementation of the proposed Project. Information on existing air quality conditions, federal, and State ambient air quality standards, and pollutants of concern was obtained from the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and the Bay Area Air Quality Management District (BAAQMD). This EIR air quality analysis has been closely coordinated with the energy and greenhouse gas analyses contained in chapters 4.6 and 4.8 of this EIR. Please refer to Appendix D for detailed air quality and greenhouse gas emissions estimates (MD, 2022).

4.3.1 Environmental Setting

Air quality is a function of pollutant emissions and topographic and meteorological influences. The physical features and atmospheric conditions of a landscape interact to affect the movement and dispersion of pollutants and determine its air quality.

Bay Area Basin

The Planning Area is located within the western portion of the San Francisco Bay Area Air Basin (Bay Area Basin), which includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa County, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County. The local air quality regulatory agency responsible for this basin is the Bay Area Air Quality Management District (BAAQMD).

The climate of the Planning Area is characterized by warm, dry summers and cool, moist winters. The proximity of the San Francisco Bay and Pacific Ocean has a moderating influence on the climate. Air is often condensed into fog or stratus clouds by the cool Pacific Ocean. This condition is typical of the warmer months of the year from roughly May through October. When a strong high pressure develops over the region in late spring and summer, the resulting warm conditions and a weak or non-existent marine inversion create clear skies and relatively dry atmospheric conditions.

In the winter, high pressure over the eastern Pacific weakens and generally shifts south, allowing transitional weather systems associated with the polar jet stream to affect northern California on a regular basis. Low pressure systems produce periods of cloudiness, strong shifting winds, and precipitation. The Planning Area receives about 15 to 20 inches of precipitation annually, with about 90 percent of this rainfall falling from November through April. Fog and haze are also common in the Planning Area during winter, when high-pressure systems influence the weather.

During the fall and winter months, the high pressure condition over the interior regions of the western United States (known as the Great Basin High) can produce extended periods of light winds and low-level temperature inversions. This condition is frequently characterized by poor atmospheric mixing resulting in degraded regional air quality. Ozone (O₃) pollution typically occurs when this condition occurs during the warmer months of the year.

Regulated Air Pollutants

The United States Environmental Protection Agency (U.S. EPA) has established National Ambient Air Quality Standards (NAAQS) for six common air pollutants: ozone (O₃), particulate matter (PM), which consists of “inhalable coarse” PM (particles with an aerodynamic diameter between 2.5 and 10 microns in diameter, or PM₁₀) and “fine” PM (particles with an aerodynamic diameter smaller than 2.5 microns, or PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. The U.S. EPA refers to these six common pollutants as “criteria” pollutants because the agency regulates the pollutants on the basis of human health and/or environmentally-based criteria and because they are known to cause adverse human health effects and/or adverse effects on the environment (U.S. EPA, 2020a and 2020b).

The California Air Resource Board (CARB) has established California Ambient Air Quality Standards (CAAQS) for the six criteria air pollutants regulated by the federal Clean Air Act (the CAAQS are more stringent than the NAAQS), plus the following additional air pollutants due to their known adverse effects on human health or the environment (CARB, 2020a): hydrogen sulfide (H₂S), sulfates (SO_x), vinyl chloride, and visibility reducing particles.

A description of the air pollutants associated with the Planning Area and its vicinity is provided below. Air pollutants not commonly associated with the existing or proposed sources in the Planning Area, such as hydrogen sulfide and visibility reducing particles, are not described below.

- **Ground-level Ozone**, commonly referred to as smog, is not emitted directly into the atmosphere. It is created from chemical reactions between NO_x and volatile organic compounds (VOCs), also called reactive organic gases (ROG), in the presence of sunlight (U.S. EPA, 2017a). Thus, ozone formation is typically highest on hot sunny days in urban areas with NO_x and ROG pollution. Ozone irritates the nose, throat, and air pathways and can cause or aggravate shortness of breath, coughing, asthma attacks, and lung diseases such as emphysema and bronchitis.
 - **ROG** is a CARB term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and includes several low-reactive organic compounds which have been exempted by the U.S. EPA (CARB, 2004).
 - **VOCs** is a U.S. EPA term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. The term exempts organic compounds of carbon which have been determined to have negligible photochemical reactivity such as: methane, ethane, and methylene chloride (CARB, 2004).
- **Particulate Matter**, also known as particle pollution, is a mixture of extremely small solid and liquid particles made up of a variety of components such as organic chemicals, metals, and soil and dust particles (U.S. EPA, 2016a).
 - **PM₁₀**, also known as inhalable coarse, respirable, or suspended PM, consists of particles less than or equal to 10 micrometers in diameter (approximately 1/7th the thickness of a human hair). These particles can be inhaled deep into the lungs and possibly enter the blood stream, causing health effects that include, but are not limited

- to, increased respiratory symptoms (e.g., irritation, coughing), decreased lung capacity, aggravated asthma, irregular heartbeats, heart attacks, and premature death in people with heart or lung disease (U.S. EPA, 2016a).
- **PM_{2.5}**, also known as fine PM, consists of particles less than or equal to 2.5 micrometers in diameter (approximately 1/30th the thickness of a human hair). These particles pose an increased risk because they can penetrate the deepest parts of the lung, leading to and exacerbating heart and lung health effects (U.S. EPA, 2016a).
 - **Carbon Monoxide (CO)** is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicles are the single largest source of carbon monoxide in the Bay Area Basin. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can aggravate cardiovascular disease and cause headaches, dizziness, unconsciousness, and even death (U.S. EPA, 2016b).
 - **Nitrogen Dioxide (NO₂)** is a by-product of combustion. NO₂ is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO₂ are collectively referred to as NO_x and are major contributors to ozone formation. NO₂ also contributes to the formation of particulate matter. NO₂ can cause breathing difficulties at high concentrations (U.S. EPA, 2016c).
 - **Sulfur Dioxide (SO₂)** is one of a group of highly reactive gases known as SO_x. Fossil fuel combustion in power plants and industrial facilities are the largest emitters of SO₂. Short-term effects of SO₂ exposure can include adverse respiratory effects such as asthma symptoms. SO₂ and other SO_x can react to form PM (U.S. EPA, 2016d).
 - **Sulfates (SO₄²⁻)** are the fully oxidized ionic form of sulfur. SO₄²⁻ are primarily produced from fuel combustion. Sulfur compounds in the fuel are oxidized to SO₂ during the combustion process and subsequently converted to sulfate compounds in the atmosphere. Sulfate exposure can increase risks of respiratory disease (CARB, 2009).
 - **Lead** is a metal found naturally in the environment as well as in manufactured products. Mobile sources used to be the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline, and in 1996, lead was banned from gasoline. As a result of these efforts, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Lead can adversely affect multiple organ systems of the body and people of every age group. Lead poisoning in young children can cause brain damage, behavioral problems, and liver or kidney damage. Lead poisoning in adults can cause reproductive problems, muscle and joint pain, nerve disorders and kidney disease (CARB, 2016a).

Common criteria air pollutants, such as ozone precursors, SO₂, and PM, are emitted by a large number of sources and have effects on a regional basis (i.e., throughout the Bay Area Basin). Other pollutants, such as hazardous air pollutants (HAPs; described in more detail below under “Toxic Air Contaminants”), toxic air contaminants (TACs; described in more detail below), and fugitive dust, are generally not as prevalent and/or emitted by fewer and more specific sources. As such, these pollutants have much greater effects on local air quality conditions and local receptors.

Ambient Air Quality Standards and Basin Attainment Status

In general, the NAAQS and CAAQS define “clean” air and are established at levels designed to protect the health of the most sensitive groups in our communities by defining the maximum amount of a pollutant (averaged over a specified period of time) that can be present in outdoor air without any harmful effects on people or the environment. Air pollutant levels are typically described in terms of concentration, which refers to the amount of pollutant material per volumetric unit of air. Concentrations are typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

The U.S. EPA, CARB, and regional air agencies assess the air quality of an area by measuring and monitoring the amount of pollutants in the ambient air and comparing pollutant levels against NAAQS and CAAQS. Table 4.3-1 (Ambient Air Quality Standards) lists the NAAQS and CAAQS.

**Table 4.3-1:
Ambient Air Quality Standards**

Pollutant	Averaging Time^(A)	California Standards^(B)	National Standards^(B)
Ozone	1-Hour (1979)	--	240 $\mu\text{g}/\text{m}^3$
	1-Hour (Current)	180 $\mu\text{g}/\text{m}^3$	--
	8-Hour (1997)	--	160 $\mu\text{g}/\text{m}^3$
	8-Hour (2008)	--	147 $\mu\text{g}/\text{m}^3$
	8-Hour (Current)	137 $\mu\text{g}/\text{m}^3$	137 $\mu\text{g}/\text{m}^3$
PM ₁₀	24-Hour	50 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$
	Annual Average	20 $\mu\text{g}/\text{m}^3$	--
PM _{2.5}	24-Hour	--	35 $\mu\text{g}/\text{m}^3$
	Annual Average (1997)	--	15 $\mu\text{g}/\text{m}^3$
	Annual Average (Current)	12 $\mu\text{g}/\text{m}^3$	12 $\mu\text{g}/\text{m}^3$
Carbon Monoxide	1-Hour	23,000 $\mu\text{g}/\text{m}^3$	40,000 $\mu\text{g}/\text{m}^3$
	8-Hour	10,000 $\mu\text{g}/\text{m}^3$	10,000 $\mu\text{g}/\text{m}^3$
Nitrogen Dioxide	1-Hour	339 $\mu\text{g}/\text{m}^3$	188 $\mu\text{g}/\text{m}^3$
	Annual Average	57 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$
Sulfur Dioxide	1-Hour	655 $\mu\text{g}/\text{m}^3$	196 $\mu\text{g}/\text{m}^3$
	24-Hour	105 $\mu\text{g}/\text{m}^3$	367 $\mu\text{g}/\text{m}^3$
	Annual Average	--	79 $\mu\text{g}/\text{m}^3$
Lead	3-Months Rolling	--	0.15 $\mu\text{g}/\text{m}^3$
Hydrogen Sulfide	1-Hour	42 $\mu\text{g}/\text{m}^3$	--

**Table 4.3-1:
Ambient Air Quality Standards**

Pollutant	Averaging Time^(A)	California Standards^(B)	National Standards^(B)
Sulfates	24-Hour	25 µg/m ³	--
Vinyl Chloride	24-Hour	26 µg/m ³	--

Source: CARB 2016b

(A) Ambient air standards have changed over time. This table presents information on the standards previously used by the U.S. EPA for which the Bay Area Basin does not meet attainment.

(B) This table summarizes the CAAQS and NAAQS and the Bay Area Basin's attainments status. This table does not present comprehensive information regarding the CAAQS and NAAQS. Each CAAQS and NAAQS has its own averaging time, standard unit of measurement, measurement method, and statistical test for determining if a specific standard has been exceeded. Standards are not presented for visibility reducing particles, which are not concentration-based. The Bay Area Basin is unclassified for visibility reducing particles.

Toxic Air Contaminants

In addition to criteria air pollutants, the U.S. EPA and CARB have classified certain pollutants as hazardous air pollutants (HAPs) or toxic air contaminants (TACs), respectively. The U.S. EPA has identified 187 HAPs, including substances such as benzene and formaldehyde; CARB also considers particulate emissions from diesel-fueled engines and other substances to be TACs. Since CARB's list of TACs references and includes U.S. EPA's list of HAPs, this EIR uses the term TAC when referring to HAPs and TACs.

TACs can cause severe health effects at very low concentrations (non-cancer effects), and many are suspected or confirmed carcinogens (i.e., can cause cancer) (U.S. EPA 2020b, CARB 2020b). People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects such as, but not limited to, reduced immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and/or other health problems (U.S. EPA 2020b, CARB 2020b).

A description of the TACs within the Planning Area and its vicinity is provided below.

- **Gasoline-Powered Mobile Sources.** According to the SCAQMD's *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (SCAQMD, 2021), or MATES V, gasoline-powered vehicles emit TACs, such as benzene, which can have adverse health risks. Gasoline-powered sources emit TACs in much smaller amounts than diesel-powered vehicles. The MATES V study identifies that diesel emissions account for approximately 50% of the total air toxics and cancer risk in the Bay Area Basin, while Benzene, 1,3-Butadiene, and Carbonyls make up approximately 25 percent of the cancer risk.
- **Diesel Particulate Matter (DPM).** Diesel engines emit both gaseous and solid material; the solid material is known as DPM. Almost all DPM is less than 1 µm in diameter, and thus is a subset of PM_{2.5}. DPM is typically composed of carbon particles and numerous organic compounds. Diesel exhaust also contains gaseous pollutants including VOCs and

NO_x. The primary sources of diesel emissions are ships, trains, trucks, rail yards and heavily traveled roadways. These sources are often located near highly populated areas, resulting in greater DPM related health consequences in urban areas. The majority of DPM is small enough to be inhaled into the lungs and what particles are not exhaled can be deposited on the lung surfaces and in the deepest regions of the lungs where they are most susceptible to injury. In 1998, CARB identified DPM as a toxic air contaminant based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM also contributes to the same non-cancer health effects as PM_{2.5} exposure (CARB, 2016c).

- **PM from Wheel-Rail Interactions.** PM may also be generated from friction between rail and locomotive wheels (wheel-rail interaction). This abrasion process can suspend metals such as iron, chromium, manganese, and copper in the form of PM (CARB, 2020b; Loxham et al., 2013); however, the potential for PM to be generated is dependent on the weight of the train and the conditions of the wheels and track on which the train rides. The Caltrain is a commuter rail that consists of a traditional diesel locomotive commuter rail system; the rail line is also shared by freight trains. Thus, while the Caltrain may generate PM from wheel-rail interaction, this contribution is anticipated be minimal (i.e., would not have an appreciable effect on mass emission or health risk estimates) and this issue is not discussed further in this EIR.
- **Toxic elements and pollutants** such as butadiene, benzene, perchloroethylene, formaldehyde, acetaldehyde, arsenic, cadmium, and lead are found in the Bay Area Basin (BAAQMD, 2017). Many toxins such as benzene, butadiene, and lead, are associated with refinery operations such as those that exist in the Bay Area Basin.

Local Air Quality Conditions

The BAAQMD monitors air quality within the Bay Area Basin. Existing levels of ambient air quality and historical trends within the Planning Area are best documented by measurements taken by the BAAQMD. Air quality monitoring stations usually measure pollutant concentrations at varying heights above ground level depending on the monitoring site and the pollutants being monitored. Therefore, air quality is often referred to in terms of ground-level concentrations. Air quality data for O₃, NO₂, CO, PM₁₀, and PM_{2.5} from Redwood City are provided in Table 4.3-2 (Local Air Quality Conditions 2017-2019).

**Table 4.3-2:
Local Air Quality Conditions 2017-2019**

Pollutant	Ambient Air Standard	Year ^(A)		
		2017	2018	2019
Ozone (O₃)				
Maximum 1-hr Concentration (ppm)		0.115	0.067	0.083
Maximum 8-hr Concentration (ppm)		0.086	0.049	0.077
Number of Days Exceeding State 1-hr Standard	>180 µg/m ³	2	0	0
Number of Days Exceeding State 8-hr Standard	>137 µg/m ³	2	0	2
Days Exceeding Federal 1-hr Standard	>0.124 ppm	2	0	0

**Table 4.3-2:
Local Air Quality Conditions 2017-2019**

Pollutant	Ambient Air Standard	Year ^(A)		
		2017	2018	2019
Days Exceeding Federal 8-hr Standard	>0.070 ppm	2	0	2
Carbon Monoxide (CO)				
Maximum 1-hr Concentration (ppm)		2.8	2.5	2.0
Maximum 8-hr Concentration (ppm)		1.4	1.7	1.1
Days Exceeding State 1-hr Standard	>23,000 µg/m ³	0	0	0
Days Exceeding Federal/State 8-hr Standard	>10,000 µg/m ³	0	0	0
Days Exceeding Federal 1-hr Standard	>40,000 µg/m ³	0	0	0
Nitrogen Dioxide (NO₂)				
Maximum 1-hr Concentration (ppb)		67	77	55
Annual Arithmetic Mean Concentration (ppb)		11	11	9
Days Exceeding State 1-hr Standard	>180 µg/m ³	0	0	0
Coarse Particulate Matter (PM₁₀) *				
Maximum 24-hr Concentration (µg/m ³)		--	--	--
Annual Arithmetic Mean (µg/m ³)		--	--	--
Samples Exceeding State 24-hr Standard	>50 µg/m ³	--	--	--
Samples Exceeding Federal 24-hr Standard	>150 µg/m ³	--	--	--
Fine Particulate Matter (PM_{2.5})				
Maximum 24-hr Concentration (µg/m ³)		60.8	120.9	29.5
Annual Arithmetic Mean (µg/m ³)		9.1	10.3	7.0
Samples Exceeding Federal 24-hr Standard	>35 µg/m ³	6	0	0
Source: BAAQMD Air Quality Summary Reports (A) "--" indicates data are not available. * There is no PM ₁₀ data for Redwood City.				

Sensitive Receptors

Some people are more affected by air pollution than others. Sensitive air quality receptors include specific subsets of the general population that are susceptible to poor air quality and the potential adverse health effects associated with poor air quality. Both CARB and the BAAQMD consider residences, schools, parks and playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes to be sensitive air quality land uses and receptors (BAAQMD 2017; CARB, 2005).

The potentially serious detrimental effects caused by even the most common pollutants are of widespread concern. O₃, PM, CO and other pollutants pose a very real threat to health and property in the Bay Area Basin. The region's high median age implies that major portions of

4.3 – Air Quality

residents are particularly susceptible to respiratory distress from O₃ and PM₁₀. In general, the sensitive air quality receptors within the City of Redwood City include, but are not limited to:

- Existing low- and medium-density residential receptors within the City;
- Existing elementary and intermediate schools, and education or institutional facilities;
- Existing medical facilities, such as the Kaiser Permanente Redwood City Medical Center;
- Existing public facilities such as the Boys and Girls Club; and
- Existing parks and recreational facilities, including, but not limited to, Red Morton Park and Edgewood Park.

Existing Air Pollution-Related Health Risks

Sensitive air quality receptors are usually most affected by local sources of air pollution. U.S. 101 and I-280 run through the middle of the Planning Area. Both of these major roadways carry trucks that emit DPM as they operate and cause localized areas of DPM concentrations. Emissions of TACs from stationary sources in the Planning Area can be found in the most recent version of BAAQMD's annual Toxic Contaminant Control Report.¹ The majority of these sources are dry cleaning facilities, which emit perchloroethylene. However, the most prevalent toxic contaminants in the Planning Area and San Mateo County (excluding diesel particulate matter) are benzene and 1,3-Butadiene from mobile sources and formaldehyde that comes from a variety of sources.

CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects. While CalEnviroScreen was originally developed as part of Senate Bill (SB) 535 and used to identify disadvantaged communities for the purposes of allocating funding from the State's Cap-and-Trade regulation, its application and scope have expanded over the years. The tool uses environmental, health, and socioeconomic information to produce scores for every census tract in the state. The CalEnviroScreen model is made up of four components – two pollution burden components (exposures and environmental effects) and two population characteristics components (sensitive populations and socioeconomic factors). The four components are further divided into 20 indicators. An indicator is a measure of either environmental conditions, in the case of pollution burden indicators, or health and vulnerability factors, in the case of population characteristic indicators.

- **Exposure** indicators are based on the measurements of different types of pollution that people may come into contact with. Exposure indicators include:
 - Air Quality: Ozone
 - Air Quality: PM_{2.5}
 - Children's Lead Risk from Housing
 - Diesel Particular Matter

¹ Toxic Contaminant Control Report, Report available at: <https://www.baaqmd.gov/about-air-quality/research-and-data/emission-inventory/toxic-air-contaminants>

- Drinking Water Contaminants
- Pesticide Use
- Toxic Releases from Facilities
- Traffic Density
- **Sensitive population** indicators measure the number of people in a community who may be more severely affected by pollution because of their age or health. Sensitive population indicators include:
 - Asthma
 - Cardiovascular Disease
 - Low Birth Weight Infants
- **Environmental effects** indicators are based on the locations of toxic chemicals in or near communities. Environmental effects indicators include:
 - Cleanup Sites
 - Groundwater Threats
 - Hazardous Waste Generators and Facilities
 - Impaired Water Bodies
 - Solid Waste Sites and Facilities
- Socioeconomic factor indicators are conditions that may increase people’s stress or make healthy living difficult and cause them to be more sensitive to pollution’s effects (OEHHA, 2017). Socioeconomic factors include:
 - Educational Attainment
 - Housing Burden
 - Linguistic Isolation
 - Poverty
 - Unemployment

Each census tract receives scores for as many of the 20 indicators as possible, and the scores are then mapped so that different communities can be compared. Percentiles are assigned to each census tract based on the census tract’s score in relation to the rest of the state. An area with a high percentile is one that experiences a much higher pollution burden than areas with low scores. For example, if a census tract has an indicator in the 40th percentile, it means that indicator’s percentile is higher than 40 percent of the census tracts in the state. CalEnviroScreen also provides a total (or cumulative) score, which is the product of multiplying the 10 pollution burden components by the 10 population characteristics. This total / cumulative score helps contextualize how multiple contaminants from multiple sources affect people, while taking into account their living conditions (e.g., nonchemical factors such as socioeconomic and health status). Communities that are within the top 25th percentile for total CalEnviroScreen scores (i.e., scoring in the 75th percentile or higher for the cumulative score) are considered disadvantaged communities pursuant to SB 535 (OEHHA, 2017).

According to the OEHHA CalEnviroScreen 4.0 Map, the census tracts that are generally located in the central eastern portions of the Planning Area have higher CalEnviroScreen scores than the census tracts located in the western and southern portions of the Planning Area. The worst-scoring census tracts within the Planning Area those located closest to the intersection of the U.S. 101 and CA 84. Census tracts 6081610201, 6081610202, and 6081610500 all score above CalEnviroScreen's 75 percentile, making them disadvantaged communities as defined by SB 535.

4.3.2 Regulatory Framework

Federal

Federal Clean Air Act

The Federal Clean Air Act (CAA), as amended, provides the overarching basis for both Federal and State air pollution prevention, control, and regulation. The CAA establishes the U.S. EPA's responsibilities for protecting and improving the nation's air quality. The U.S. EPA oversees Federal programs for setting air quality standards and designating attainment status, permitting new and modified stationary sources of pollutants, controlling emissions of hazardous air pollutants, and reducing emissions from motor vehicles and other mobile sources. In 1971, to achieve the purposes of Section 109 of the CAA, the U.S. EPA developed primary and secondary NAAQS. Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and public welfare from air pollutants in the atmosphere.

State

California Clean Air Act

In addition to being subject to Federal requirements, air quality in the state is also governed by more stringent regulations under the California Clean Air Act, which was enacted in 1988 to develop plans and strategies for attaining the CAAQS. As discussed above, in California, both the Federal and State Clean Air acts are administered by CARB. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional level.

In-Use Off-Road Diesel Equipment Program

CARB's In-Use Off-Road Diesel Equipment regulation is intended to reduce emissions of NO_x and PM from off-road diesel vehicles, including construction equipment, operating within California. The regulation imposes limits on idling; requires reporting equipment and engine information and labeling all vehicles reported; restricts adding older vehicles to fleets; and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing exhaust retrofits for PM. The requirements and compliance dates of the off-road regulation vary by fleet size, and large fleets (fleets with more than 5,000 horsepower) must meet average targets or comply with Best Available Control Technology (BACT) requirements beginning in 2014. CARB has off-road anti-idling regulations affecting self-propelled diesel-fueled vehicles of 25 horsepower and up. The off-road anti-idling regulations limit idling on applicable equipment to no more than five minutes, unless exempted due to safety, operation, or maintenance requirements.

On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) regulation (also known as the Truck and Bus Regulation) is intended to reduce emission of NO_x, PM, and other criteria pollutants generated from existing on-road diesel vehicles operating in California. The regulation applies to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned, and for privately and publicly owned school buses. Heavier trucks and buses with a GVWR greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Fleets complying with the heavier trucks and buses schedule must install the best available PM filter on 1996 model year and newer engines, and replace the vehicle 8 years later. Trucks with 1995 model year and older engines had to be replaced starting in 2015. Replacements with a 2010 model year or newer engine meet the final requirements, but owners can also replace the equipment with used trucks that have a future compliance date (as specified in regulation). By 2023, all trucks and buses must have at least 2010 model year engines with few exceptions.

CARB Stationary Diesel Engines – Emission Regulations

In 1998, CARB identified DPM as a TAC. In 2000, to reduce public exposure to DPM, the Board approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Risk Reduction Plan) (CARB 2000). Integral to this plan is the implementation of control measures to reduce DPM such as the control measures for stationary diesel-fueled engines. As such, diesel generators must comply with regulations under CARB's *Amendments to Airborne Toxic Control Measure for Stationary Compression Ignition Engines* and be permitted by BAAQMD.

CARB Air Quality and Land Use Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB's Air Quality and Land Use Handbook is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process (CARB, 2005). The CARB Handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for "sensitive" land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds. Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the Handbook relative to the Planning Area include taking steps to consider or avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;
- Within 300 feet of gasoline fueling stations; or
- Within 300 feet of dry-cleaning operations (dry cleaning with TACs is being phased out and will be prohibited in 2023).

4.3 – Air Quality

CARB prepared a technical supplement to the Handbook, a *Technical Advisory on Strategies to Reduce Air Pollution Exposure Near High Volume Roadways* (CARB, 2017), that provides recommendations for strategies to minimize exposure of the public to air pollutants due to proximity to high volume roadways, such as reducing traffic emissions and removing pollution from the air.

Air Toxics “Hot Spots” Program

State requirements specifically address emissions of air toxics through Assembly Bill (AB) 1807 (known as the Tanner Bill) that established the State Air Toxics “Hot Spots” Program and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code Section 44300 et seq.). Under the Air Toxics Hot Spots Information and Assessment Act of 1987 (or Air Toxics “Hot Spots” Act) and Air Toxics Hot Spots Program, the State (CARB) must collect data on toxic emissions from stationary sources (facilities) throughout the State and ascertain potential health risks that these emissions pose to members of community for developing cancer or for resulting in non-cancer health effects. California’s Children’s Environmental Health Protection Act of 1999 (California Health and Safety Code Section 39606), also requires explicit consideration of infants and children in assessing risks from air toxics.

Substances regulated under California’s Air Toxics Hot Spots Program are defined in statute and include a list of substances developed by the following sources:

- International Agency for Research on Cancer (IARC);
- U.S. EPA;
- U.S. National Toxicology Program (NTP);
- CARB Toxic Air Contaminant Identification Program List;
- Hazard Evaluation System and Information Service (HESIS) (State of California);
- Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) list of carcinogens and reproductive toxicants (State of California); and
- Any additional substance recognized by the State Board as presenting a chronic or acute threat to public health when present in the ambient air.

When locating receptors near large generators of TAC emissions, the BAAQMD recommends conducting CO hot spot analyses and analyzing health risk for these new developments.

Regional

Bay Area Air Quality District

The BAAQMD is primarily responsible for assuring that the national and state ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for and inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD

has jurisdiction over much of the nine Bay Area counties, including San Mateo County, in which the Planning Area is located. Much of BAAQMD's regulatory authority is the control of stationary air pollution sources.

The BAAQMD develops CEQA guidelines for local jurisdictions to use in evaluating air quality impacts from projects and plans reviewed through the CEQA process. The District has no regulatory authority to enforce this guidance; however, most lead agencies use the guidance to evaluate air quality impacts.

Air Quality Plans

The BAAQMD develops air quality plans addressing the California Clean Air Act and updates them approximately every three years toward meeting the CAAQS.

Bay Area Clean Air Plan, 1991

The Bay Area Clean Air Plan was prepared in 1991 to address the more stringent requirements of the California Clean Air Act with respect to O₃. This plan includes a comprehensive strategy to reduce emissions from stationary, area, and mobile sources. The plan objective is to indicate how the Bay Area Basin would make progress toward attaining the stricter state air quality standards, as mandated by the California Clean Air Act. The plan was designed to achieve a region-wide reduction of O₃ precursor pollutants through the expeditious implementation of all feasible measures. Air quality plans addressing the California Clean Air Act are developed on a triennial basis, with the latest approved update to the plan developed in 2017 (i.e., 2017 Bay Area Ozone Strategy, described below).

2005 Bay Area Ozone Strategy

In early 2006, BAAQMD adopted the Bay Area 2005 Ozone Strategy, which includes a comprehensive strategy to reduce ozone precursor emissions from stationary, area, and mobile sources. This plan implements transportation control measures to address the 1-hour NAAQS for O₃ and achieve basin-wide reductions in ozone precursor pollutants. The clean air planning efforts for ozone also will reduce PM₁₀ and PM_{2.5}, as a substantial amount of particulate matter comes from combustion emissions such as vehicle exhaust.

The Bay Area 2005 Ozone Strategy proposes expanded implementation of Transportation Control Measures (TCMs) and programs such as Spare the Air, a public outreach program designed to educate the public about air pollution in the Bay Area and promote individual behavior changes that improve air quality. Some of these measures or programs rely on local governments for implementation.

The BAAQMD is currently in the process of updating this plan, as required by the California Clean Air Act. In addition to implementing all feasible measures to reduce ozone, the plan will consider impacts of ozone control measures on particulate matter, TACs, and greenhouse gases in a single integrated plan.

2017 Bay Area Clean Air Plan

In April 2017, the BAAQMD adopted the 2017 Bay Area Clean Air Plan (CAP). This is the latest update to the 1991 Bay Area Clean Air Plan that is required to include all feasible measures to reduce emissions of ozone precursors. The 2017 Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the Air District will continue its progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

Regulation 6, Rule 3: Wood Burning Devices

BAAQMD adopts and enforces rules to reduce particulate matter emissions and develops public outreach programs to educate the public to reduce PM₁₀ and PM_{2.5} emissions (e.g., Spare the Night Program). On July 9, 2008, the BAAQMD Board adopted Regulation 6, Rule 3: Wood-Burning Devices, which is intended to reduce emissions that come from residential wood burning. This new rule restricts wood burning when air quality is unhealthy and a wintertime Spare the Air Advisory is issued. The rule also requires that only cleaner burning EPA-certified stoves and inserts be installed in new construction or remodels, including natural gas fireplaces. The rule applies to new woodstove and fireplace inserts. The regulation also places limits on excessive smoke, prohibits the burning of garbage and other harmful materials, and also requires the labeling of firewood and solid fuels sold within the Bay Area.

BAAQMD CEQA Guidelines

BAAQMD has prepared CEQA Guidelines to assist lead agencies, analysts, project proponents, and other interested parties in evaluating potential air quality impacts of projects and plans proposed in the Bay Area. The guidelines recommend procedures for evaluating projects or plans and thresholds to determine whether the impacts are significant; the guidelines are used in this analysis (see Section 4.3.3) to establish thresholds of significance for environmental impacts. These guidelines also provide direction for identifying measures to mitigate impacts related to air quality. BAAQMD's current CEQA guidelines were adopted in 2017. These guidelines include emission-based thresholds for project-level analysis, new procedures and thresholds for evaluating community risk, and greenhouse gas thresholds.

4.3.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to air quality if it would:

- a) Conflict with or obstruct implementation of the applicable air quality plan;
- b) 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;

- c) Expose sensitive receptors to substantial pollutant concentrations;
- d) Create objectionable odors affecting a substantial number of people.

Regional Significance Thresholds

The significance thresholds in the BAAQMD’s CEQA Guidelines were used for evaluating the impacts associated with the implementation of the proposed Project. The BAAQMD does not have plan-level mass thresholds, but rather requires consistency with the current air quality plan control measures and projected VMT or vehicle trip increase to be less than or equal to projected population increase. The guidelines also require overlay zones around existing and planned sources of TACs, at least 500 feet from all freeways and high volume roadways as well as identifying the location and including policies to reduce the impacts of existing or planned sources of odors.

Carbon Monoxide “Hot Spot” Thresholds

Historically, to determine whether a project poses the potential for a CO hotspot, the quantitative CO screening procedures provided in the *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) were used (UCD ITS, 1997). The Protocol determines a project may worsen air quality if the project increases the percentage of vehicles in cold start modes by two percent or more; significantly increases traffic volumes by five percent or more; or worsens traffic flow, defined for signalized intersections as increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. With new vehicles and improvements in fuels resulting in fewer emissions, the retirement of older polluting vehicles, and new controls and programs, CO concentrations have declined dramatically in California. As a result of emissions controls on new vehicles, the number of vehicles that can idle and the length of time that vehicles can idle before emissions would trigger a CO impact has increased, so the use of LOS as an indicator is no longer applicable for determining CO impacts.

BAAQMD developed a screening-level analysis for CO hotspots in 2010 which finds that projects that are consistent with the applicable congestion management program, and that do not cause traffic volumes at affected intersections to increase to more than 44,000 vehicles per hour, would not result in a CO hotspot that could exceed State or Federal air quality standards (BAAQMD, 2017; pg. 3-4). Therefore, for purposes of this EIR, the Project would pose the potential for a CO hotspot if it would exceed the BAAQMD’s screening traffic level for peak hour intersection traffic volumes (44,000 vehicles per hour), thereby having the potential to result in CO concentrations that exceed 1-hour State (20 ppm), 1-hour Federal (35 ppm), and/or State and Federal 8-hour (9 ppm) ambient air quality standards for CO.

4.3.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Air Quality impacts.

4.3.5 Impacts and Mitigation Measures

This evaluates potential air quality impacts and recommends mitigation measures, as needed, to reduce significant impacts.

Conflicts with Local Air Quality Plans

Impact AIR-1 – Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Analysis of Impacts

As described in Section 4.3.1, the proposed Project is within the San Francisco Bay Area Air Basin, which is under the jurisdiction of the BAAQMD. The BAAQMD requires that projects do not conflict with or obstruct implementation of the AQP. Pursuant to the methodology provided in Chapter 9 of the BAAQMD CEQA Air Quality Guidelines, consistency will be analyzed through the following questions:

- 1) Does the project support the primary goals of the AQP?;
- 2) Does the project include applicable control measures from the AQP?; and
- 3) Does the project disrupt or hinder implementation of any AQP control measures?

Consistency Criterion 1 refers to the goals of the Bay Area CAP: attain air quality standards, reduce population exposure and protecting public health in the Bay Area, and reduce greenhouse gas emissions and protect the climate. The 2017 AQP was designed to achieve attainment for all criteria air pollutants within the Bay Area Basin while still accommodating growth in the region.

Consistency Criterion 2 refers to the control measures included in the BAAQMD CAP. The 2005 Ozone Strategy (i.e., BAAQMD's most recent Clean Air Plan) includes 20 transportation control measures, of which seven require participation at the local level. The latest set of adopted TCMs, which identify local governments as implementing agencies, are listed by the BAAQMD in their CEQA Guidelines. The majority of the TCMs in the AQP do not apply directly to the Project and its related buildout because they target facilities or land uses that do not currently exist and would not be permitted in the Plan area (e.g., energy generation, waste management, agricultural, forest or pasture lands). The Project does not conflict with, and instead fulfills, the applicable TCMs, listed below. Under Public Safety Element Policy PS-3.1, the City would support programs that increase ridesharing, reduce pollutants generated by vehicle use, and meet the transportation control measures recommended by BAAQMD in the most recent Clean Air Plan. The measures that will be implemented by the City and future development projects are described below.

TCM #1 Support Voluntary Employer-Based Trip Reduction Programs

The Circulation Element of the Built Environment includes policies (BE-31.4 through BE 31.10) supporting transportation demand management (TDM) programs and encouraging reduced parking supplies that would encourage non-automobile travel modes.

TCM #3 Improve Area Wide Transit Service

While this TCM is primarily meant for region-wide implementation, the General Plan includes 10 policies contained in the Circulation chapter that would support the overall goal of utilizing the use of public transportation (Policies BE-27.1 through BE-27.10). Under Policy BE-21.3, the City would develop a plan that accommodates passenger ferry service at the Port (region-wide transit service), which also supports the Clean Air Plan TCM# 7 that would improve regional ferry service. Circulation Element policies BE-28.1 through BE-28.3 support improved rail service in the City. The General Plan also includes a conceptual streetcar system. If developed in the future, such a system would provide a new transit mode that would potentially link existing and planned transit services.

TCM# 9. Improve Bicycle Access and Facilities and TCM# 19. Pedestrian Travel

The General Plan includes policies and implementation programs that reasonably implement these TCMs. In addition to the policies that promote mixed uses indirectly promoting alternative modes of transportation, the Circulation chapter of the Built Environment Element includes goals and policies to promote bicycle and pedestrian modes of travel. Policies BE-25.1 through BE-25.7 support a goal of a balanced transportation system. Policies BE-26.1 through BE-26.6 support the goal of improving the convenience, comfort and safety of walking, bicycling and electric scooter travel. Policies BE-19.3, BE-19.4, and BE-19.5 require new employment centers to include safe and convenient walking, biking and transit connections and include amenities to encourage these modes of transportation. Built Environment Policy BE-10.7 improves pedestrian, bicycle and transit linkages between Bayfront and the areas north of U.S. 101.

TCM# 15. Local Clean Air Plans, Policies and Programs and TCM# 17. Conduct Demonstration Projects

Public Safety Element Program PS-12 supports new technologies by replacing Redwood City fleet vehicles with hybrid, electric, or other new technologies that have lower emission rates. Program PS-18 of the Public Safety Element educates the public regarding best management practices to help improve air quality (also supporting TCM #10 that supports youth transportation). Circulation chapter Policy BE-26.12 would encourage more students to walk and bicycle to and from schools. In addition, the City would participate in the region's Spare the Air program under Program PS-6. Under Program PS-14 and PS15, the City has adopted a Climate Action Plan with targets to reduced greenhouse gas emissions by 50% below 2005 levels by 2030 and carbon neutrality well before 2045. Implementation of these programs would lead to greater reductions in emission of air pollutants. Much of the development under the Project would be expected in the downtown areas that are served by transit and include a mix of uses. This type of development is supportive of the regionally approved Smart Growth Vision for the Bay Area that is part of TCM #5.

TCM# 20. Promote Traffic Calming Measures

In addition to Built Environment Element policies and programs that support mixed uses to encourage more walking, bicycling and use of transit, Circulation Policy BE-25.5 would continue to implement (PEDS) that would provide wider sidewalks, bicycle lanes, and transit amenities. Policy BE-29.2 pursues programs that reduce vehicle speeds and cut through traffic. Policy BE-

30.2 minimizes potential conflicts between trucks and pedestrians, bicyclist or transit access. The General Plan policies and programs support the BAAQMD Clean Air Plan TCMs. The impact would therefore be less than significant. No mitigation is required. The Project would also not disrupt or hinder any other measures, in compliance with Consistency Criterion 3.

Although the proposed Project would not result in operational emissions that exceed BAAQMD regional CEQA thresholds (described in Impact AIR-2, below) and would comply with all relevant AQP control measures, because construction emissions from the proposed Project may exceed BAAQMD thresholds (discussed in Impact AIR-2), the proposed Project is considered to have a **significant and unavoidable impact**.

Criteria Pollutants

Impact AIR-2 – Would the Project 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?

The proposed Project sets forth the City's vision for the types of development that would occur over the next approximately 8 years. The proposed land use designations permit slightly higher development intensity within the City boundaries than compared to the existing General Plan. Criteria air pollutant and other emissions would result from construction activities, and from the operation of residences, businesses, and other land uses within the City.

Project implementation would generate short-term construction and long-term operational emissions of regulated air pollutants (i.e., criteria air pollutants and TACs). These emissions would be released to the ambient air and disperse according to the topographic and meteorological influences that prevail near the Planning Area and in the greater Bay Area Basin (see Section 4.3.1). The BAAQMD has no plan-level significance thresholds; however, in developing its CEQA significance thresholds, the BAAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (BAAQMD, 2017). The BAAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant. The BAAQMD maintains project-level significance thresholds to assess how individual projects may affect air quality on large and small geographic scales. The potential for construction and operational emissions associated with Project implementation to impact air quality on a regional and local level is discussed below.

Construction Emissions

The proposed Project would not directly result in construction of any development or infrastructure; however, future development facilitated by the Project would result in short-term construction-related criteria pollutant emissions that have the potential to have an adverse effect on air quality. Short-term criteria air pollutant emissions would occur during demolition, site preparation, grading, building construction, paving, and architectural coating activities associated with specific, new development projects. Emissions would occur from use of equipment, worker, vendor and hauling trips, and disturbance of onsite soils (fugitive dust). ROG and NOX emissions are primarily associated with gas and diesel equipment exhaust and the application of architectural coatings. Fugitive dust emissions (PM10 and PM2.5) are primarily associated with

site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT by construction vehicles on- and off-site. Typical construction equipment associated with development and redevelopment projects includes, but is not limited to, dozers, graders, excavators, loaders, and trucks.

Although it is not possible to know the exact type, number, location, or duration of future construction projects, future development activities would generally entail demolition, site preparation, grading, building construction, paving, and painting. Since Redwood City is generally a built-out city, many new projects in the City will likely require the demolition of existing structures to make room for newer ones. Fugitive dust (PM₁₀) emissions would typically be greatest during building demolition, site preparation, and grading due to the disturbance of soils and transport of material. NO_x emissions would also result from the combustion of diesel fuels used to power off-road heavy-duty pieces of equipment (backhoes, bulldozers, excavators, etc.). ROG emissions would generally be greatest during architectural coating activities. The types and quantity of equipment, as well as duration of construction activities, would be dependent on project-specific conditions. Larger projects would require more equipment over a longer timeframe than that required for redevelopment of a single, residential home or small residential or mixed-use project.

Given the speculative nature of construction activities that could occur under implementation of the proposed Project, it is not possible at this time to accurately assess the level of emissions that would be generated by future development and redevelopment activities in the City. It is possible that either no construction could be occurring within the City at any given time, or multiple projects could be occurring simultaneously. Despite these unknowns, it is plausible that one or more projects developed under implementation of the proposed Project could have the potential to exceed one or more of the BAAQMD's construction criteria air pollutant thresholds of significance (e.g., NO_x for a project involving a substantial amount of earthwork during grading, ROG during architectural coating activities). Therefore, this impact is potentially significant and requires mitigation.

Operational Emissions

If adopted, the proposed Project would accommodate new residential land uses, some of which would involve replace existing development. Overall, project implementation would increase residential dwelling units in the City under the Cumulative (2040) Plus Project scenario.

Growth associated with implementation of the Project would result in long-term regional emissions of criteria air pollutants associated with the operation of area sources, energy sources, and mobile sources. Area source emissions, which are widely distributed and made of many small emissions sources (e.g., landscaping equipment, consumer products, painting operations), were modeled according to the size and type of land uses proposed. Energy sources, which include natural gas combustion for heating and other purposes, were also modeled based on the size and type of land uses included in the Project's 2040 growth forecast. Mobile-source emissions were modeled based on the daily vehicle trips that would result from the proposed Project. The net change in emissions of regulated air pollutants that would occur with implementation of the Project was modeled using CalEEMod, V. 2020.4.0. The net change in operational emissions for the Project was modeled based on the Project's 2040 growth projection, using default data assumptions provided by CalEEMod, with the following project-specific modifications:

- **Land Use Development:** The default acreage and square footage for proposed development intensities within the Planning Area was adjusted to reflect proposed development conditions (considering allowable floor-to-area ratio, acreage in the Planning Area, etc.).
- **Mobile Sources**
 - **Trip Generation and Distance:** An average trip distance of approximately 8.17 miles was derived from a default CalEEMod run. This trip distance was used in conjunction with the average, daily trip generation estimate prepared by Fehr and Peers for the proposed land uses (678,090 trips per day).
 - **Emission Factors:** Vehicle emission factors were updated based on derived EMFAC20201 (version 1.0.1) emission rates for San Mateo County (Bay Area) in the Year 2040, consistent with the methodology described in the CalEEMod User’s Guide Appendix A (CAPCOA, 2017b).

The net change in long-term operational emissions that would be generated by Project growth is shown in Table 4.3-3. The net change in emissions evaluated in this EIR is based on the difference between the existing land uses under Cumulative (2040) Plus Project conditions and the proposed Project land uses under Cumulative (2040) conditions, which estimates 2040 emissions for the existing conditions. Table 4.3-3 shows the project would increase emissions overall but would reduce emissions per capita and would therefore not have a significant impact. PM₁₀ and PM_{2.5} dust would increase by 1% per capita, however overall PM₁₀ and PM_{2.5} will be reduced by 8.4% and 7.1%, respectively.

**Table 4.3-3:
2040 Project Growth Forecast Operational Emissions**

Emissions Scenario	Maximum Daily Pollutant Emissions (Pounds per Day) ^(A)									
	ROG	NO _x	CO	SO ₂	PM ₁₀			PM _{2.5}		
					Dust	Exhaust	Total	Dust	Exhaust	Total
Cumulative (2040) Plus Project										
Area Sources	34,643.34	608.60	40,558.83	58.96	0.00	5,016.01	5,016.01	0.00	5,016.01	5,016.01
Energy Sources	36.61	312.84	133.12	2.00	0.00	25.29	25.29	0.00	25.29	25.29
Mobile Source	1,289.10	1,053.21	12,415.71	23.64	3,294.91	10.48	3,305.39	877.58	9.78	887.36
Total ^(B)	35,969.05	1,974.65	53,107.67	84.60	3,294.91	5,051.79	8,346.70	877.58	5,051.09	5,928.67
Residents	131,347									
<i>Emissions per Resident</i>	<i>0.274</i>	<i>0.015</i>	<i>0.404</i>	<i>0.001</i>	<i>0.025</i>	<i>0.038</i>	<i>0.064</i>	<i>0.007</i>	<i>0.038</i>	<i>0.045</i>
Cumulative (2040)										
Area Sources	30,968.18	529.82	35,851.01	52.76	0.00	4,492.31	4,492.31	0.00	4,492.31	4,492.31
Energy Sources	33.00	281.97	119.99	1.80	0.00	22.80	22.80	0.00	22.80	22.80
Mobile Source	1,047.18	855.56	10,085.66	19.21	2,676.55	8.52	2,685.07	712.88	7.95	720.83

**Table 4.3-3:
2040 Project Growth Forecast Operational Emissions**

Emissions Scenario	Maximum Daily Pollutant Emissions (Pounds per Day) ^(A)									
	ROG	NO _x	CO	SO ₂	PM ₁₀			PM _{2.5}		
					Dust	Exhaust	Total	Dust	Exhaust	Total
Total ^(B)	32,048.36	1,667.35	46,056.65	73.76	2,676.55	4,523.63	7,200.18	712.88	4,523.06	5,235.94
Residents	107,731									
Emissions per Resident	0.297	0.015	0.428	0.001	0.025	0.042	0.067	0.007	0.042	0.049
Net Change in Emissions Levels										
Total ^(B)	3,921	307	7,051	11	618	528	1,147	165	528	693
Emissions per Resident	-0.024	0.000	-0.023	0.000	0.000	-0.004	-0.003	0.000	-0.004	-0.003
Percent Change per Resident	-7.9%	-2.9%	-5.4%	-5.9%	1.0%	-8.4%	-4.9%	1.0%	-8.4%	-7.1%
Source: MD Acoustics, 2022 (see Appendix D)										
(A) Emissions estimated using CalEEMod, V 2020.4.0. Estimates are based on default model assumptions unless otherwise noted in this document. Maximum daily ROG, CO, SOX emissions occur during the summer. Maximum daily NOX, PM ₁₀ , and PM _{2.5} emissions occur during the winter.										
(B) Totals may not equal due to rounding.										

Level of Significance Before Mitigation

Construction Emissions. As discussed above, construction emissions associated with future development activities facilitated under implementation of the proposed Project could exceed BAAQMD-recommended CEQA significance thresholds for regional criteria air pollutant emissions. This is considered a **potentially significant impact**.

Operational Emissions. As shown in Table 4.3-3, the modeled, maximum daily operational emission associated with potential Cumulative (2040) Plus Project growth would overall decrease per capita and would not have a significant impact.

Mitigation Measures

Mitigation Measure AIR-2: Require a Project-level Construction Assessment for New Discretionary Development Projects. The City shall require applicants to submit a quantitative project-level construction criteria air pollutant and toxic air contaminant emissions analysis for future discretionary development projects. The estimated construction criteria air pollutant and toxic air contaminant emissions shall be compared against the thresholds of significance maintained by the Bay Area Air Quality Management District (BAAQMD) and, if emissions are shown to be above BAAQMD thresholds, the City shall require the imposition and implementation of mitigation measures to reduce emissions below the thresholds that have been exceeded. Mitigation measures to reduce emissions could include, but are not limited to:

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- Selection of specific construction equipment (e.g., specialized pieces of equipment with smaller engines or equipment that will be more efficient and reduce engine runtime);
- Requiring equipment to use alternative fuel sources (e.g., electric-powered and liquefied or compressed natural gas), meet cleaner emission standards (e.g., U.S. EPA Tier IV Final emissions standards for equipment greater than 50-horsepower), and/or utilizing added exhaust devices (e.g., Level 3 Diesel Particular Filter);
- Minimizing the idling time of diesel-powered construction equipment to two minutes; and
- Application of Low-VOC paints to interior and/or exterior surfaces (e.g., paints that meet BAAQMD Regulation 8 Rule 3 requirements).

Level of Significance After Mitigation

Construction Emissions. As described in the preceding analysis, there is uncertainty regarding the specific nature of construction activities that would be facilitated under implementation of the proposed Project. Despite the implementation of Mitigation Measure AIR-2, which requires the preparation of project-specific air quality analysis prior to the construction of any new development and incorporation of mitigation measures if emissions levels are shown to be above BAAQMD-recommended thresholds of significance, it cannot be definitively known or stated at this time that all future development projects occurring under implementation of the proposed Project would be able to reduce potential criteria air pollutant emissions to levels that are below BAAQMD thresholds. Therefore, with regard to criteria air pollutant emission generated during construction activities, this impact would be considered **significant and unavoidable** even with the incorporation of feasible mitigation measures.

Operational Emissions. Not applicable.

Sensitive Receptors

Impact AIR-3 – Would the Project expose sensitive receptors to substantial pollutant concentrations?

Analysis of Impacts

Growth projected to occur under the Project could expose existing and new sensitive receptors to substantial concentrations of criteria air pollutants and TAC emissions that pose adverse health effects. The potential for the proposed Project to expose sensitive receptors to substantial pollutant concentrations is evaluated below.

CO Hotspots

Based on data provided by the EIR transportation consultant (Fehr and Peers), the maximum number of vehicles moving through any study analysis zone under the Project's 2040 growth projection would be 264,060 vehicles per day on U.S. 101 between Whipple Avenue and Woodside Road. Using maximum peak hourly trips at 10% of daily trips, 26,406 trips per hour along this segment can be assumed. This level of traffic is substantially below the screening threshold of 44,000 vehicles per hour for a CO hotspot analysis (See Section 4.3.3). Therefore,

the Project would not cause or significantly contribute to CO concentrations that exceed State or Federal ambient air quality standards for CO. This impact would be less than significant.

Construction Emissions

As discussed under Impact AIR-2, future development activities facilitated under implementation of the proposed Project would generate emissions, including emissions of DPM (a TAC), during construction activities. These emissions would occur intermittently over the approximately 8-year growth period associated with the Project. Although specific details regarding project development within the Planning Area are not known at this time, it is possible that one or more projects developed under implementation of the proposed Project could have the potential to exceed BAAQMD localized significance thresholds (LSTs) and thresholds of significance for cancerogenic and non-cancerogenic health risks.

Operational Emissions

As shown in Table 4.3-3, implementation of the proposed Project would generally reduce the quantity of criteria air pollutants emitted per capita within the City. As discussed previously, the BAAQMD's CEQA thresholds were developed to attain the CAAQS and NAAQS. In developing the CAAQS and NAAQS, the U.S. EPA and CARB considered scientific evidence linking exposure to air pollutants to health risks. Although each individual's health characteristics, environment, and pre-disposition to adverse respiratory health effects is different, compliance with the CAAQS and NAAQS is intended to protect the most sensitive individuals. As described under Impact AIR-2, the proposed Project would not generate operational emissions such that receptor exposure to substantial pollutant concentrations would occur. Even if operational emissions were to have exceeded the BAAQMD's thresholds, a significant impact would likely have not occurred. In the amicus brief filed by the SCAQMD on the California Supreme Court's decision in *Sierra Club v. County of Fresno*, the SCAQMD noted that, "[it] takes a large amount of additional precursor emissions [e.g., NOx] to cause a modeled increase in ambient ozone levels... a project emitting only 10 tons per year of NOx or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models used to determine ozone levels..." (SCAQMD, 2015). The proposed Project solely focuses on new residential development to increase dwelling unit density and does not reimagine the City in a manner that would substantially increase the quantity of highly polluting land uses (e.g., industrial facilities). Therefore, the changes in land use proposed by the Project do not have the potential to alter the City-wide emissions profile in a manner that could exacerbate or contribute to significant health risks at or in proximity of the Planning Area.

Exacerbation of Existing Sources of Pollutants

Project growth would add new residential development in the City and could place new, sensitive receptors in proximity to existing sources of emissions and local stationary sources of emissions.

Per the ruling by the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369 (2015), projects are not required to analyze how existing conditions might impact a project's future users or residents. As such, this analysis does not focus on potential, future receptor exposure to existing emissions from existing sources of pollutants in and near the City. Rather, it focuses on the incremental increase in pollutant

concentrations and associated impacts (including adverse health impacts) that could occur if existing operations were to change as a result of Project growth.

Under the Cumulative (2040) Plus Project growth projection, the proposed Project would increase the number of residents in the Planning Area from approximately 107,731 people to approximately 131,347 people, an increase of approximately 23,616 people (21.9% increase). Although this growth would occur throughout the City, it would occur primarily in areas focused for redevelopment. The growth envisioned under the Project would generate long-term emissions, primarily associated with area and mobile sources that would combust natural gas or gasoline. As described under Impact AIR-2, emissions of operations-related criteria air pollutants would comply with BAAQMD significance thresholds and would not result in, nor substantially exacerbate, substantial pollutant concentrations at sensitive receptor locations.

Additional Information on Existing Sources of Pollutants

The proposed Project could result in new sensitive receptors being exposed to significant sources of TAC emissions. The CARB Air Quality and Land Use Handbook recommends avoiding the siting of new sensitive land uses (e.g., residences, schools, etc.) within:

- 300 feet of large gasoline fueling stations (with a throughput of more than 3.6 million gallons of gasoline per year);
- Within 300 feet of dry cleaning operations;
- Within 500 feet of freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day; or
- Within 1,000 feet of a major rail service or maintenance yard.

Although the potential exists for the Project to result in new sensitive residential receptors near existing sources of emissions, the Project would not exacerbate pollutant concentrations or health risks associated with emissions sources and, therefore, cause an impact under CEQA.

Level of Significance Before Mitigation

CO Hotspots. The proposed Project would not exceed the screening threshold of 44,000 vehicles per hour. Therefore, it would not result in a CO hotspot. This impact would be less than significant.

Construction Emissions. As discussed under the preceding analysis and Impact AIR-2, construction emissions associated with future development activities facilitated under implementation of the proposed Project could exceed BAAQMD construction thresholds and cancerogenic and non-cancerogenic threshold maintained and recommended by the BAAQMD. This is considered a **potentially significant impact**.

Exacerbation of Existing Sources of Pollutants. Implementation of the proposed Project would not exacerbate existing sources of pollutants in and near the Planning Area. This impact would be less than significant.

Mitigation Measures

See Mitigation Measure AIR-2.

Level of Significance After Mitigation

CO Hotspots. Not applicable.

Construction Emissions. There is uncertainty regarding the specific nature of construction activities that would be facilitated under implementation of the proposed Project. Despite the implementation of Mitigation Measure AIR-2, which requires the preparation of project-specific air quality analysis prior to the construction of any new development and incorporation of mitigation measures if emissions levels are shown to be above BAAQMD-recommended thresholds of significance for cancerogenic and non-cancerogenic risks, as well as BAAQMD criteria thresholds, it cannot be definitively known or stated at this time that all future development projects occurring under implementation of the proposed Project would be able to reduce potential risks and localized construction air pollutant emissions to levels that are below BAAQMD thresholds. Therefore, with regard to localized criteria air pollutant and TAC emissions generated during future construction activities, this impact would be **significant and unavoidable** even with the incorporation of feasible mitigation measures.

Exacerbation of Existing Sources of Pollutants. Not applicable.

Objectionable Odors

Impact AIR-4 – Would the Project result in other emissions such as those leading to odors adversely affecting a substantial number of people?

Analysis of Impacts

According to the BAAQMD *CEQA Air Quality Guidelines*, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). The Project does not include these types of sources, and there are no such active sources in or near the Planning Area.

Construction occurring within the Planning Area could produce odors from fuel combustion or solvents/paints used. These odors would be temporary, quickly disperse, and would not affect a substantial number of people.

Under the Cumulative (2040) Plus Project growth projection, the Project would increase the amount of residential development in the City, including multi-family development that could be located close to retail, restaurant, and other commercial land uses that may generate localized sources of odors that may or may not be objectionable to nearby residential land uses.

The Project does not, in and of itself, permit or authorize any new, major sources of potential odors (e.g., wastewater treatment plant), and odor impacts would be less than significant with standard environmental review practices.

Level of Significance Before Mitigation

The potential impacts associated with objectionable odors under the proposed Project would be **less than significant**.

Mitigation Measures

None required.

4.3.6 References

Bay Area Air Quality Management District (BAAQMD). (2017). California Environmental Quality Act Air Quality Guidelines. San Francisco, CA. June 2010, updated May 2017.

California Air Resources Board (CARB). (2004). Definitions of VOC and ROG. Sacramento, CA. 2004. Web: https://www.arb.ca.gov/ei/speciate/voc_rog_dfn_11_04.pdf. [Accessed July 2020].

_____. (2005). Air Quality and Land Use Handbook: A Community Health Perspective. Sacramento, CA. 2005. Available online at: <<https://www.arb.ca.gov/ch/handbook.pdf>>

_____. (2009). "History of Sulfates Air Quality Standard". California Ambient Air Quality Standards. CARB, Air Quality Standards and Area Designations, Review of Ambient Air Quality Standards, California Ambient Air Quality Standards. November 24, 2009. Web: <http://www.arb.ca.gov/research/aags/caags/sulf-1/sulf-1.htm>. [Accessed July 2020].

_____. (2014). California's 2000-2012 Greenhouse Gas Emissions Inventory Technical Support Document. 2014 Edition. Web: https://www.arb.ca.gov/cc/inventory/doc/methods_00-12/ghg_inventory_00-12_technical_support_document.pdf [Accessed May 2021].

_____. (2016a). "Lead and Health." Web: <https://www.arb.ca.gov/research/diesel/diesel-health.htm>. [Accessed July 2020].

_____. (2016b). Ambient Air Quality Standards. Sacramento, CA. Web: <https://www.arb.ca.gov/research/aags/aags2.pdf>. [Accessed July 2020].

_____. (2017). *Technical Advisory on Strategies to Reduce Air Pollution Exposure Near High Volume Roadways*. April, 2017.

_____. (2016c). "Overview: Diesel Exhaust and Health." Health Effects of Diesel. Available online at: <<https://www.arb.ca.gov/research/diesel/diesel-health.htm>>

_____. (2020a). Common Air Pollutants. Web: <https://ww2.arb.ca.gov/resources/common-air-pollutants>. [Accessed July 2020].

_____. (2020b). Reducing Toxic Air Pollutants in California's Communities. Web: <https://www.arb.ca.gov/toxics/brochure.pdf>. [Accessed July 2020].

- _____. (2021). CARB Facility Search Engine. Search conducted May 21, 2021. Web: <https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php?dd=>
- California Air Pollution Control Officers Association (CAPCOA). (2017a). CalEEMod User Manual Appendix E Technical Source Documentation. Prepared for CAPCOA. Prepared by Trinity Consultants, Dallas TX. October 2017.
- _____. (2017b). CalEEMod User Manual Appendix A Calculation Details. Prepared for CAPCOA. Prepared by Trinity Consultants, Dallas TX. October 2017.
- California Energy Commission (CEC). (2018). 2019 Building Energy Efficiency Standards Frequently Asked Questions. Sacramento, CA. March 2018
- Fehr & Peers Transportation Consultants. (2022). Transportation Impact Analysis for the Redwood City General Plan. 2022.
- Loxham, M., M.J. Cooper, M.E. Gerlofs-Nijland, F. R. Cassee, D.E. Davies, M.R. Palmer, and D.A.H. Teagle. (2013). Physicochemical characterization of airborne particulate matter at a mainline underground railway station. *Environmental Science and Technology*, Apr. 16: 47(8): 3614-3622.
- Office of Environmental Health Hazard Assessment (OEHHA). (2017). CalEnviroScreen 3.0 Report. January 2017.
- _____. (2021). CalEnviroScreen 4.0. Last updated April 28, 2021. [Accessed May 2021]. Web: <https://oehha.ca.gov/calenviroscreen/report/draft-calenviroscreen-40>
- South Coast Air Quality Management District (SCAQMD). (2015). Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Part and Proposed Brief of Amicus Curiae (*Sierra Club v. County of Fresno* 6 Cal. 5th 502 (2018)). Diamond Bar, CA. April 2015.
- _____. (2021). Multiple Air Toxics Exposure Study V (MATES V). Web: <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>. [Accessed May 2021].
- UC Davis, Institute of Transportation Studies (UCD ITS). (1997). Transportation Project-Level Carbon Monoxide Protocol- Revised 1997. USD-ITS-RR-99-21. Davis, CA.
- United States Environmental Protection Agency (U.S. EPA). (2016a). "Particulate Matter (PM) Basics." U.S. EPA, Environmental Topics [Air], Particulate Matter (PM), What is PM, and how does it get into the air?. September 12, 2016. Web: <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM>. [Accessed July 2020].
- _____. (2016b). "Carbon Monoxide (CO) Pollution in Outdoor Air." U.S. EPA, Environmental Topics [Air], Carbon Monoxide (CO), What is CO? September 12, 2016. Web: <https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#What%20is%20CO>. [Accessed July 2020].

_____. (2016c). "Basic Information About NO2." U.S. EPA, Environmental Topics [Air], Nitrogen Dioxide (NO2), What is NO2, and how does it get into the air? September 8, 2016. Web: <https://www.epa.gov/no2-pollution/basic-information-about-no2#What%20is%20NO2>. [Accessed July 2020].

_____. (2016d). "Sulfur Dioxide Basics." U.S. EPA, Environmental Topics [Air], Sulfur Dioxide (SO2), What is SO2, and how does it get into the air? August 16, 2016. Web: <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#what%20is%20so2>. [Accessed July 2020].

_____. (2016e). *Light Duty Vehicles and Light Duty Trucks: Tier 0, Tier 1, National Low Emission Vehicle (NLEV), and Clean Fuel Vehicle (CFV) Exhaust Emission Standards. EPA 420-B-16-010.* Washington, D.C. March 2016.

_____. (2016f). *Light Duty Vehicles and Light Duty Trucks: Clean Fuel Fleet Exhaust Emission Standards. EPA 420-B-16-006.* Washington, D.C. March 2016.

_____. (2017). "Ozone Basics." U.S. EPA, Environmental Topics [Air], Ground Level Ozone, What is "good" versus "bad" ozone. Web: <https://www.epa.gov/ozone-pollution/ozone-basics#what%20where%20how>. [Accessed July 2020].

_____. (2020a). Criteria Air Pollutants. Web: <https://www.epa.gov/criteria-air-pollutants>. [Accessed July 2020].

_____. (2020b). Health and Environmental Effects of Hazardous Air Pollutants. Web: <https://www.epa.gov/haps/health-and-environmental-effects-hazardous-air-pollutants>. [Accessed July 2020].

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	Full Phrase or Description
AB	Assembly Bill
AQMP	Air Quality Management Plan
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
Basin	Bay Area Air Basin
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	Carbon monoxide
DPM	Diesel particulate matter
EIR	Environmental Impact Report
GVWR	Gross vehicle weight rating
H ₂ S	Hydrogen sulfide

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	Full Phrase or Description
HAP	Hazardous Air Pollutants
I	Interstate
lbs	Pounds
LOS	Level of Service
LST	Localized Significance Threshold
m ³	Cubic meter
NAAQS	National Ambient Air Quality Standards
NO	Nitrogen oxide
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NTP	United State National Toxicology Program
O ₃	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
PM	Particulate matter
ppb	Parts per billion
ppm	Parts per million
PM _{2.5}	Fine particulate matter
PM ₁₀	Coarse particulate matter
ROG	Reactive organic gases
SO ₂	Sulfur dioxide
SO ₄ ²⁻	Sulfates
SO _x	Oxides of sulfur
TAC	Toxic Air Contaminants
TIA	Traffic Impact Analysis
U.S.	United States
U.S. EPA	United States Environmental Protection Agency
V.	Version
VMT	Vehicle Miles Traveled
VOC	Volatile organic compounds
µg	Micrograms
%	Percent
° C	Degrees Celsius
° F	Degrees Fahrenheit

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4.4 Biological Resources

This EIR chapter describes the existing biological resources environmental and regulatory framework, analyzes potential impacts, and identifies mitigation measures, as required.

4.4.1 Environmental Setting

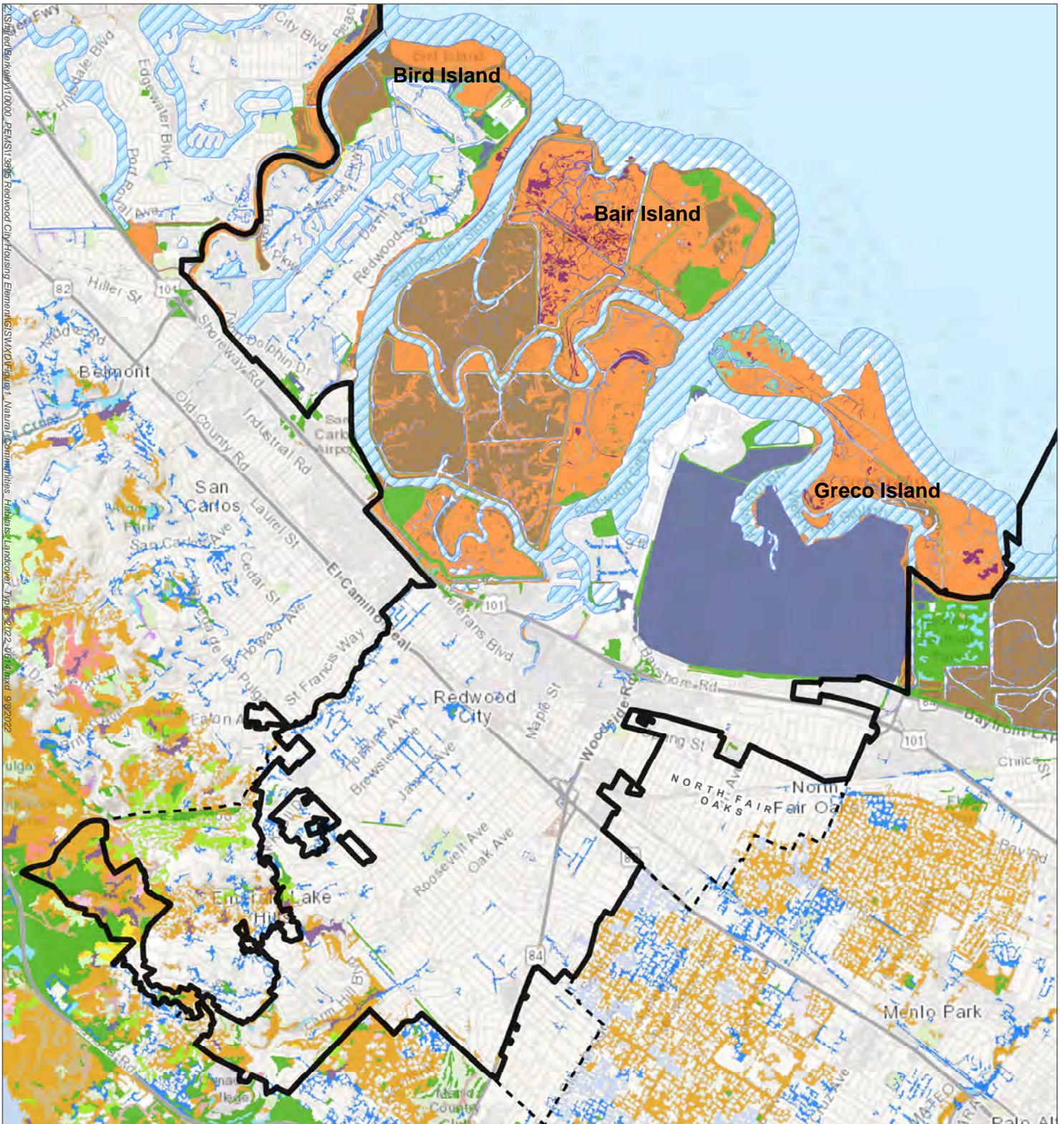
The Planning Area contains urban areas and open space, with native habitats. The majority of the native habitat within the Planning Area occurs along the Bayshore, and consists primarily of open baylands including Bair Island, Bird Island, Greco Island, the Redwood Shores Lagoon, and the salt crystallization ponds on the Cargill Property. The Bayland islands are preserved for their natural resources and are managed by the U.S. Fish and Wildlife Service (USFWS) as part of the Don Edwards National Wildlife Refuge.

According to the Redwood City General Plan 2010 EIR, the Emerald Hills and Farm Hill neighborhoods in the southern boundaries of the Planning Area are low density residential communities containing scattered areas of native vegetation on private property. The southern, hilly upland portions of the Planning Area also include the Edgewood County Park and Natural Preserve and Stulsaft Park. The underlying geology of these areas includes serpentine bedrock which accounts for the serpentine vegetation communities present in these parks (further discussed under the heading “Vegetation and Habitats”).

A San Mateo County fine scale vegetation map was released on March 3, 2022, by the Golden Gate National Parks Conservancy and other public and private partners (GGNPC 2022). The San Mateo County map is a 106-class vegetation map of San Mateo County with 97,582 polygons and represents the landscape in 2018 adhering to the National Vegetation Classification System. The map was created using semi-automated methods that include field work, computer-based machine learning, and manual aerial photo interpretation. The portion of the map within the Planning Area was used to create Figure 4.4-1 and Table 4.4-1 below. Land cover and vegetation types in the Redwood City are summarized below based on that mapped information.

Natural Communities, Habitats, and Landcover Types

Grassland. Grasslands include native bunchgrass grasslands and non-native annual grasslands. Non-native grasslands are more widespread and are dominated by introduced annual grasses and forbs. Bunchgrass grasslands are relicts of the pristine grassland that existed prior to Euro-American settlement and are dominated by native perennial bunchgrasses. Grassland communities generally occur in areas that are too hot and dry for woodlands and forests. Grassland communities intergrade with coastal scrub, chaparral, oak woodlands, and riparian communities. Typical non-native grasslands are dominated by introduced oat (*Avena* spp.) and brome (*Bromus* spp.) grasses. Typical native bunchgrasses include purple needle grass (*Stipa pulchra*). This community includes the *Californian Annual & Perennial Grassland Mapping Unit*.



Source: VegCamp 2022; ESRI 2022

- | | |
|---|--|
| <ul style="list-style-type: none"> Redwood City Boundary Sphere of Influence Boundary Australian wattle-Grevillea-Tea Tree Ruderal Patches Provisional Semi-Natural Alliance Chamise Chaparral Madrone Forest California Sagebrush Scrub Coyote Brush Scrub Barren and Sparsely Vegetated Salt Marsh Bulrush Marshes Californian Annual & Perennial Grassland Mapping Unit Developed | <ul style="list-style-type: none"> Salt Grass Flats Eucalyptus – Tree of Heaven – Black Locust Groves Gum Plant Patches Yellow Bush Lupine Scrub Mudflat-Dry Pond Bottom Mapping Unit Non-Native Forest Monterey Pine Plantation Provisional Semi-Natural Association Douglas Fir - Tanoak/California Huckleberry Forest Mixed Oak Forest and Woodland Coast Live Oak Woodland and Forest Leather Oak Chaparral California Black Oak Forest and Woodland Valley Oak Mapping Unit Pickleweed Mats Redwood Forest and Woodland California Cordgrass Marsh California Bay Forest and Woodland Water |
|---|--|

Figure 4.4-1: Natural Communities, Habitats, and Landcover Types

**Table 4.4-1:
Natural Communities, Habitats, and Landcover in Redwood City**

Natural Communities, Habitats, and Landcover	Approximate Acres
Grassland	
Californian Annual & Perennial Grassland Mapping Unit	411
Woodland and Forest	
California Black Oak Forest and Woodland	0.74
Coast Live Oak Woodland and Forest	158
Douglas Fir/Tanoak Forest and Woodland	0.97
Madrone Forest	5.15
Mixed Oak Forest and Woodland	9.15
Redwood Forest and Woodland	3.71
Valley Oak Mapping Unit	4.81
Estuarine	
Barren and Sparsely Vegetated	1,371
California Cordgrass Marsh	140
Gum Plant Patches	17.6
Mudflat Dry Pond Bottom Mapping Unit	1,138
Pickleweed Mats	1,981
Salt Grass Flats	62.5
Salt Marsh Bulrush Marshes	0.45
Riparian	
California Bay Forest and Woodland	34.9
Shrubland	
California Sagebrush – (Purple Sage) Scrub	5.07
Chamise Chaparral	1.72
Coyote Brush Scrub	32.7
Leather Oak Chaparral	1.11
Yellow Bush Lupine Scrub	0.639
Ornamental	
Australian wattle - Grevillea - Tea Tree Ruderal Patches Provisional Semi-Natural Alliance	7.29
Eucalyptus – Tree of Heaven – Black Locust Groves	1.90
Monterey Pine Plantations Provisional Semi-Natural Association	1.38
Non-native Forest	229

**Table 4.4-1:
Natural Communities, Habitats, and Landcover in Redwood City**

Natural Communities, Habitats, and Landcover	Approximate Acres
Developed/Landscaped	
Developed	4,813

Woodland and Forest. The woodland and forest communities include areas dominated by trees that form dense canopies (forest) to areas with more open canopies (woodland). In forest areas, there are often several overlapping layers of trees, with a mid-story and understory comprising a variety of shade-tolerant shrubs and a sparse layer of herbaceous plants. In woodland areas, the open canopy allows more sunlight to reach the ground. The understory is often dominated by grasslands.

Oak woodlands and forests are found in both dry and mesic areas, mainly in the Emerald Lake Hills and Farm Hills areas, and include the *California Black Oak Forest and Woodland*, *Coast Live Oak Woodland and Forest*, *Blue Oak Woodland and Forest*, and *Mixed Oak Forest and Woodland* vegetation alliances, as well as the *Valley Oak Mapping Unit*. This community includes the *Madrone Forest* vegetation alliance, which occurs on upper slopes and ravines in mesic areas, the *Douglas Fir – Tanoak/California Huckleberry Forest and Woodland* vegetation association, and the *Redwood Forest and Woodland* vegetation alliance, both of which occur along low- to moderate-elevation slopes and ravines, mostly in mesic areas. All three intergrade with the oak woodland and forest vegetation alliances.

Estuarine. Estuarine habitats include coastal salt marsh (*Salt Marsh Bulrush Marshes*, *Salt Grass Flats*, *Pickleweed Mats*, *California Cordgrass Marsh*, and *Gum Plant Patches* vegetation alliances), intertidal mudflats (*Mudflat Dry Pond Bottom Mapping Unit*), and salt ponds (*Barren and Sparsely Vegetated*).

Coastal salt marsh is a wetland plant community found in tidal areas and is dominated by salt-tolerant hydrophytic vegetation that typically forms a dense mat of vegetation. This plant community occurs along the California coast from Oregon to near Point Conception and is especially extensive around the San Francisco Bay. Typical species include pickleweed (*Salicornia* sp.), California cordgrass (*Spartina foliosa*), alkali heath (*Frankenia salina*), saltmarsh dodder (*Cuscuta pacifica*), jaumea (*Jaumea carnosa*), sea lavender (*Limonium californicum*), and marsh gumplant (*Grindelia stricta*). Intertidal mudflats are often interspersed with coastal salt marsh. Salt ponds are artificial ponds used to extract salt from sea water and are isolated from tidal action by levees.

Riparian. Riparian communities include the scrub/woodland communities found along watercourses, including streams, lakes, and ponds. Riparian communities depend on water that is captured by or flows along these watercourses and are often sustained by seasonal flooding and high groundwater levels. These communities are characterized by a complex canopy formed by different trees, shrubs, vines, herbs, and grasses. Typical species that form the uppermost canopy are California Bay (*Umbellularia californica*), and willows (*Salix* spp.). In the intermediate canopy are younger willows, western poison oak (*Toxicodendron diversilobum*), and California blackberry (*Rubus ursinus*). Typical species found in the understory include mugwort (*Artemisia douglasiana*), and creeping snowberry (*Symphoricarpos mollis*). This community includes the

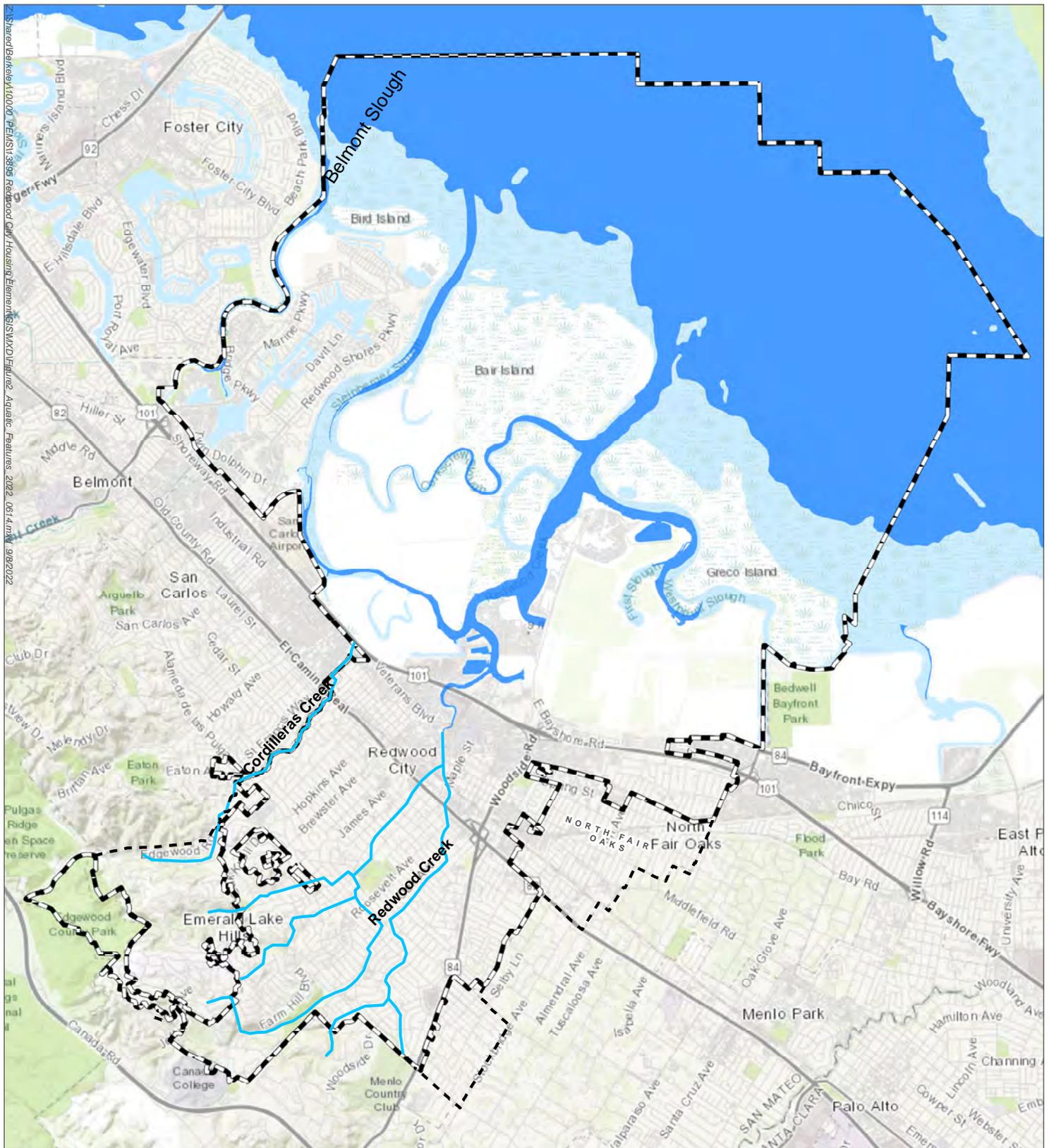
California Bay Forest and Woodland and *Arroyo Willow Thickets* vegetation alliances, which are mostly associated with creeks and streams in the Planning Area. Stream and wetlands are shown in Figure 4.4-2.

Shrubland. Shrublands include coastal scrub and chaparral communities. Coastal scrub communities are dominated by shrubs and occur west of the Sierra Nevada on relatively shallow, dry soils (compared to chaparral) in areas where a Mediterranean climate prevails. They are found at elevations ranging from near sea level to 1,800 feet. A community located in a moister climate, such as under the influence of coastal fogs may reach 6 feet tall. However, a community located in a drier climate, such as on the interior slope of a hillside located in a rain shadow, may reach only 9 inches tall. Dominant shrubs include California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), yellow bush lupine (*Lupinus arboreus*), poison oak (*Toxicodendron diversilobum*), and black sage (*Salvia mellifera*). This community includes the *California Sagebrush – (Black Sage Scrub and Coyote Brush Scrub, and Yellow Bush Lupine Scrub* vegetation alliances.

Chaparral communities typically consist of dense stands of 4- to 12-foot-tall evergreen woody shrubs and trees. They are found at elevations ranging from near sea level to 1,800 feet. The understory vegetation is sparse to lacking. A chaparral community is composed mainly of species which are adapted to seasonal and periodic drought, and are highly adapted to periodic natural fires which occur once every ten to thirty or more years. Dominant species include chamise (*Adenostoma fasciculatum*), Toyon (*Heteromeles arbutifolia*), leather oak (*Quercus durata*), and California coffeeberry (*Frangula californica*). This community includes the *Chamise Chaparral and Leather Oak Chaparral* vegetation alliances.

Ornamental. Ornamental woodlands are those areas where ornamental and other introduced species of trees, including Eucalyptus, have been planted or naturalized and dominate, forming open to dense canopies. Ornamental woodlands are mostly found in urban or developed areas in the Planning Area. This community includes the *Australian wattle - Grevillea - Tea Tree Ruderal Patches* Provisional Semi-Natural Alliance, *Eucalyptus – Tree of Heaven – Black Locust Groves* Semi-Natural Alliance, *Monterey Pine Plantations* Provisional Semi-Natural Association, and *Non-native Forest*.

Developed/Landscaped. Developed land cover includes areas where natural vegetation communities have been replaced with houses and buildings, commercial structures, and transportation infrastructure including paved roads and other paved surfaces. Most areas within this land cover type are devoid of vegetation but may include landscaped areas and/or scattered areas of vegetation dominated by ornamental and/or ruderal (i.e., disturbed) species. It also includes areas that were previously developed but are now barren and are sparsely or not vegetated. This land cover also includes areas where the native vegetation has been cleared for vineyards.



Source: ESRI 2022; NWI 2022

-  Redwood City Boundary
-  Sphere of Influence Boundary

- Wetland Type**
-  Tidal Water
 -  Riverine

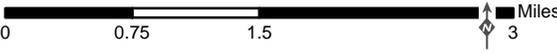


Figure 4.4-2: Streams and Water Bodies

Special-Status Species and Sensitive Habitats

CEQA requires an assessment of the effects of a project on species that are “threatened, rare, or endangered”; such species are typically described as “special-status species.” Impacts on these species are regulated by federal and state laws described under the Regulatory Framework, below.

A special-status plant is defined as a plant species that is:

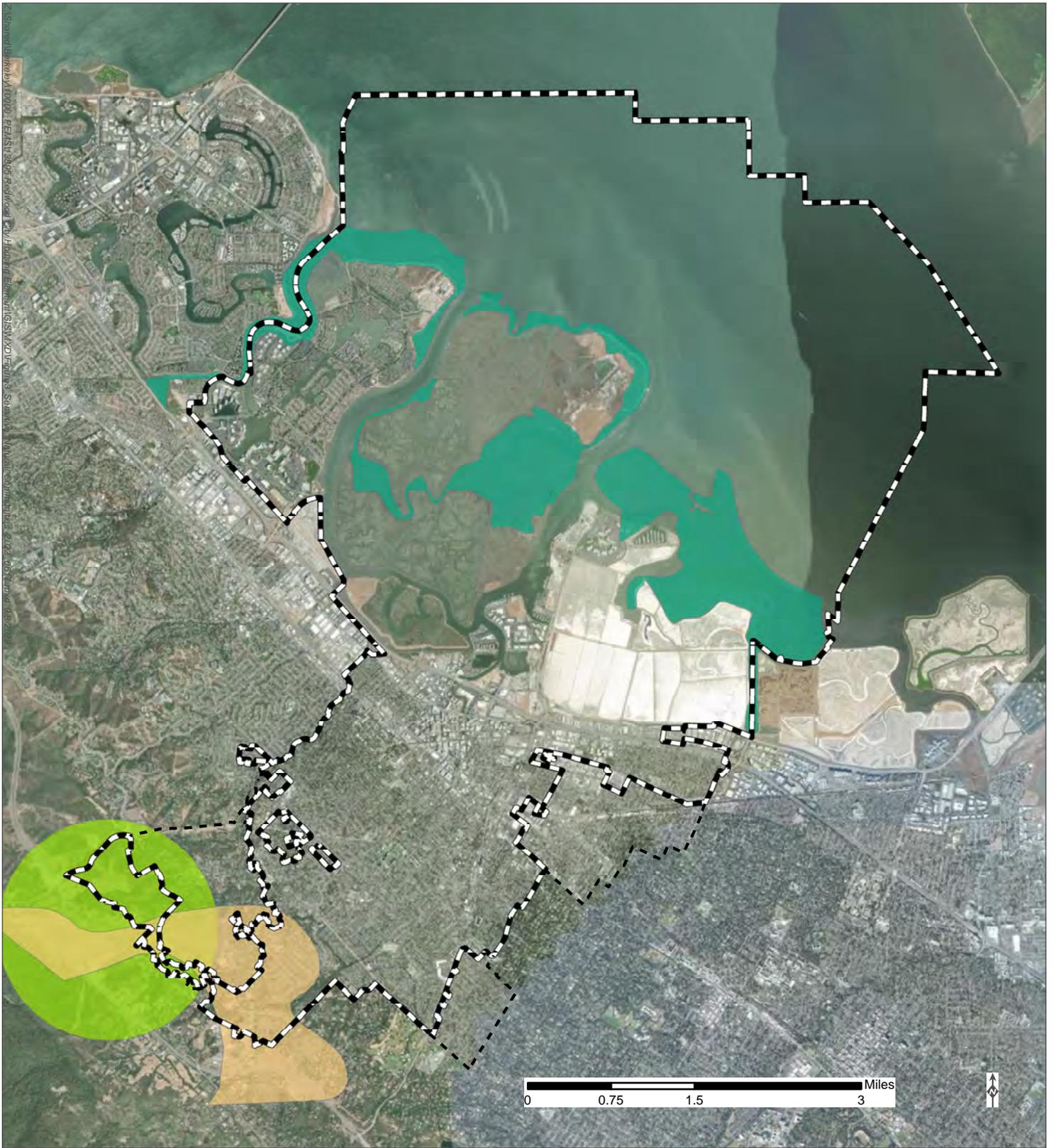
- Listed under the Federal Endangered Species Act (FESA) as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under the California Endangered Species Act (CESA) as threatened, endangered, rare, or a candidate species.
- Listed by the California Native Plant Society (CNPS) with California Rare Plant Rank (CRPR) rank 1A, 1B, 2, 3, or 4.

A special-status animal is defined as an animal species that is:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the California Department of Fish and Wildlife (CDFW) as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species.

Special-Status Plants

The CNPS (2022) and the California Natural Diversity Database (CNDDDB 2022) identify 51 special-status plants that occur within the Planning Area region. Of these 51 species, 31 species have no potential to occur in the developed or open space areas of the Planning Area because it is out of their known range. The remaining 20 species have some potential to occur within the Planning Area. Specifically, special-status species could potentially occur in natural or semi-natural vegetation communities in the Emerald Lake Hills and Farm Hills areas, especially in areas that contain serpentine soils and other natural areas (see Figure 4.4-3). However, due to the long history of urbanization and associated land development within the Planning Area, no special-status plants are not expected to occur in developed areas where natural vegetation communities have been replaced with houses and buildings; commercial structures, paved roads and other paved surfaces, and vacant lots or other areas that are vegetated with only non-native, invasive vegetation. Table 4.4-2 lists the 20 special status species, regulatory status, habitat, and potential to occur.



Source: ESRI 2022; CNDDDB 2022; USGS 2022

-  Redwood City Boundary
-  Metamorphic and Serpentine Soils
-  Sphere of Influence Boundary

- Sensitive Natural Communities**
-  Northern Coastal Salt Marsh
 -  Serpentine Bunchgrass

Figure 4.4-3: Sensitive Natural Communities

Special-Status Animals

The CNDDDB (2022) identifies 47 special-status animal species occurring within the Planning Area region. Twenty of these species were determined to have no potential to occur in the Planning Area because it is out of their known range, lacks suitable habitat, and/or is isolated from the nearest known occurrence by movement barriers including development or contiguous suitable habitat. The remaining 27 species are known to be present; may be present due to the presence of suitable habitat and connectivity with known occurrences; or are known to occur but do not breed in the Planning Area (Table 4.2-2). Most of the species that are present or may be present are expected to occur in the Bayland habitats in the eastern portion of the Planning Area or in open space areas and more natural portion of riparian areas in the western portion of the Planning Area. Species that are known to be present in the Planning Area include the Bay checkerspot butterfly, white-tailed kite, Northern harrier, American peregrine falcon, salt marsh common yellowthroat, California Ridgway's rail, Alameda song sparrow, burrowing owl, and salt marsh harvest mouse, and salt marsh wandering shrew. Additionally, the western portion of the Planning Area overlaps with a portion of USFWS-designated critical habitat for the Bay checkerspot butterfly (Figure 4.4-4) (USFWS 2008). Special-status species that are known to occur as occasional visitors or migrants but are not known to breed in the Planning Area are steelhead (Central California coast (southern Distinct Population Segment [DPS]), green sturgeon (Southern DPS), longfin smelt, monarch butterfly, western snowy plover, and California least tern. Other special-status species that have some potential to occur but for which there are no known documented occurrences in the Planning Area include the crotch bumble bee, western pond turtle, California red-legged frog, California black rail, black skimmer, pallid bat, Townsend's big-eared bat, and San Francisco dusky-footed woodrat. Three additional species were considered but are unlikely to occur in the Planning Area, based on this high-level analysis, are the western bumble bee, California tiger salamander, and San Francisco garter snake (Table 4.4-2).

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
Plants			
Arcuate bush mallow (<i>Malacothamnus arcuatus</i>)	CRPR 1B.2	Evergreen shrub. Occurs in chaparral on serpentine soils. Blooms April – September.	Possible. Observed along Powerline Ridge near Edgewood Park and Natural Preserve in 2017 and 2021.
Bent-flowered fiddleneck (<i>Amsinckia lunaris</i>)	CRPR 1B.2	Annual herb. Coastal bluff scrub, cismontane woodland and valley and foothill grassland, often on serpentine soils. Blooms March – June.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2021 and nearby Jasper Ridge Biological Preserve in 2022.
Brewer's calandrinia (<i>Calandrinia breweri</i>)	CRPR 4.2	Annual herb. Occurs in chaparral and coastal scrub on sandy loamy soils. Blooms January – June.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2018.
Bristly leptosiphon (<i>Leptosiphon acicularis</i>)	CRPR 4.2	Annual herb. Occurs in grassy areas in coastal prairie, chaparral, and foothill woodland. Blooms April – May.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2018.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
Crystal Springs lessingia (<i>Lessingia arachnoidea</i>)	CRPR 1B.2	Annual herb. Occurs on serpentine in cismontane woodland, coastal scrub, and valley and foothill grassland. Blooms July – October.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2022.
Franciscan onion (<i>Allium peninsulare</i> var. <i>franciscanum</i>)	CRPR 1B.2	Perennial herb. Occurs on hillsides in cismontane woodland and valley and foothill grassland with serpentine, clay, and volcanic soils. Blooms May – June.	Present. Observed in 2020 near Springdale Way and along Lakeview Road near Edgewood Park and Natural Preserve. Also documented from Edgewood Park in 2008 and Stulsaft Park in 2017.
Fountain thistle (<i>Cirsium fontinales</i> var. <i>fontinales</i>)	FE, SE, CRPR 1B.1	Perennial herb. Occurs in serpentine seeps in chaparral openings and valley and foothill grassland. Blooms June – October.	Present. Observed in Stulsaft Park 2018 and Edgewood Park and Natural Preserve in 2008.
Fragrant fritillary (<i>Fritillaria liliacea</i>)	CRPR 1B.2	Perennial herb. Occurs in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, on heavy clay and serpentine soils. Blooms February – April.	Present. Observed in 2015 near Eden Bower Lane. Also, documented from Edgewood Park and Natural Reserve in 2022.
Gairdner’s yampah (<i>Perideridia gairdneri</i> ssp. <i>Gairdneri</i>)	CRPR 4.2	Perennial herb. Occurs in moist soils within broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools. Blooms June – October.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2018.
Harlequin lotus (<i>Hosackia gracilis</i>)	CRPR 4.2	Perennial herb. Occurs in marshes, shores, ponds, ditches, wet areas in meadows in mixed evergreen forest, northern coastal scrub, and closed-cone pine Forest. Blooms March – July.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2018.
Marin western flax (<i>Hesperolinon congestum</i>)	FT, CT, CRPR 1B.1	Annual herb. Occurs on serpentine substrate in chaparral and valley and foothill grassland. Blooms April – July.	Present. Observed at Edgewood Park and Natural Preserve in 2022.
Michael’s rein orchid (<i>Piperia michaelii</i>)	4.2	Perennial herb. Occurs in dry areas within coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms April – June.	Possible. Observed at nearby Jasper Ridge Biological Preserve in 2018.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
San Francisco collinsia (<i>Collinsia multicolor</i>)	CRPR 1B.2	Annual herb. Occurs in moist, shady woodland habitats. Blooms March – May.	Present. Observed in 2022 near Springdale Way just north of the Planning Area. Also, documented at Edgewood Park and Natural Preserve in 2022 and along Edmonds Road near the Pulgas Ridge Open Space Preserve parking area in 2022.
San Francisco wallflower (<i>Erysimum franciscanum</i>)	CRPR 4.2	Perennial herb. Occurs on serpentine and granite substrate in coastal strand, northern coastal scrub, and valley grassland. Blooms March – June.	Possible. Observed in the nearby Crystal Spring Watershed lands in 2022.
San Mateo thorn-mint (<i>Acanthomintha duttonii</i>)	FE, SE, CRPR 1B.1	Annual herb. Occurs on serpentine in chaparral, and valley and foothill grassland. Blooms April – June.	Present. This species is highly restricted in distribution and is known from only two extant natural occurrences and one introduced population in San Mateo County, including Edgewood Park and Natural Preserve.
Serpentine leptosiphon (<i>Leptosiphon ambiguous</i>)	CRPR 4.2	Annual herb. Occurs in grassy areas on serpentine soils. Blooms April – May.	Present. Observed in 2017 near Interstate 280 and Farm Hill Boulevard immediately south of the Planning Area. Also, documented from Edgewood Park and Natural Reserve in 2022.
Western leatherwood (<i>Dirca occidentalis</i>)	CRPR 1B.2	Deciduous shrub. Occurs on mesic sites in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian scrub, and riparian woodland. Blooms January – April.	Possible. Observed at Edgewood Park and Natural Preserve in 2022 and directly north of the City boundary along Edmonds Road near the Pulgas Ridge Open Space Preserve parking area in 2022.
White-rayed pentachaeta (<i>Pentachaeta bellidiflora</i>)	FE, CE, CRPR 1B.1	Annual herb. Occurs on serpentine substrate on cismontane woodland and valley and foothill grassland.	Unlikely. This species is highly restricted in distribution and is known only from the Crystal Springs Reservoir area and near Edgewood Park and Natural Preserve.
Woodland woollythreads (<i>Monolopia gracilens</i>)	1B.2	Annual herb. Occurs on serpentine substrate in broadleaved upland forest, chaparral, cismontane woodland, north coast coniferous forest and valley and foothill grassland,	Present. Observed at Edgewood Park and Natural Preserve in 2022.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
		usually in open areas. Blooms February – July	
Woolly-headed lessingia (<i>Lessingia hololeuca</i>)	CRPR 3	Annual herb. Occurs in broadleaved upland forest, coastal scrub, lower montane coniferous forest and valley and foothill grassland on clayey and serpentine substrates. Blooms June – October.	Present. Observed at Edgewood Park and Natural Preserve in 2022.
Fish			
Green sturgeon – southern DPS (<i>Acipenser medirostris</i> pop. 1)	FT	Spawns in freshwater rivers such as the Sacramento River; forages in nearshore oceanic waters, bays, and estuaries.	Absent as breeder. Green sturgeon has been infrequently detected in the San Francisco Bay and may forage infrequently in Redwood Creek, Belmont Slough, and other un-named tidal channels on the Bay side of the City. However, this species is not known to spawn in any aquatic systems in San Mateo County. May infrequently forage in estuarine areas in the Bay waters in the eastern portion of the City.
Steelhead – Central California Coast DPS	FT	Spawns in cool freshwater streams with fast moving water, and riffles with gravel and cobbles. Requires unobstructed movement between spawning and marine habitats.	Absent as Breeder. Central California Coast steelhead spawn in many of the streams of the San Francisco Bay. As of 2005, they do not occur in Redwood Creek, and their status is unknown in Belmont Creek, Cordilleras Creek, and other unnamed channels in the estuary in the City (Leidy et al. 2005). Because many of the streams in the Redwood City are channelized and do not support dense canopy, these streams likely do not support suitable spawning habitat for steelhead. However, adults and yearling juveniles may be present in low numbers as occasional foragers in the channels within the estuary.
Longfin smelt (<i>Spirinchus thaleichthys</i>)	FC, ST	Spawns in estuaries and near coastal freshwater streams in Suisun Bay and the lower Sacramento and San Joaquin	Absent as Breeder. Longfin smelt do not occur in Redwood Creek, and there is unknown or insufficient data on their status in

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
		Rivers. Migrates seasonally to the San Francisco Bay where it occurs in tidal reaches of estuary streams.	Belmont Creek and Cordilleras Creek in the waters in or near Redwood City. However, this species may be present as an occasional forager in small numbers in the open bay waters and sloughs in the Bay side area of Redwood City.
Invertebrates			
Crotch bumble bee (<i>Bombus crotchii</i>)	SC	Open grasslands and meadows with a sufficient abundance and duration of floral resources for foraging; undisturbed soils, rodent and other animal burrows for nesting and overwintering sites.	Possible. This species was historically found throughout much of the state, including Redwood City, but has not been detected recently. This species has been detected in Santa Clara County in 2019 and 2021 (The Xerces Society et al. 2022). Although this species has not been detected in San Mateo County, suitable habitat is present in open space areas in the western portion of the Planning Area.
Western bumble bee (<i>Bombus occidentalis</i>)	SC	Meadows and grasslands with a sufficient abundance and duration of floral resources; underground rodent or other animal burrows for nesting; may overwinter in friable soils and plant litter or debris.	Unlikely. This species was historically found throughout much of the state but has not been detected since the 1970s. Although this species has not been detected in San Mateo County, suitable habitat is present in open space areas in the western portion of the Planning Area.
Monarch butterfly (<i>Danaus plexippus</i>)	FC	Overwinters along the coast of San Mateo County on the branches and leaves of trees including Monterey pine (<i>Pinus radiata</i>), Monterey cypress (<i>Cupressus maculata</i>), and eucalyptus (<i>Eucalyptus</i> sp.) in areas with appropriate sun exposure and thermal buffering.	Absent as breeder. Monarch butterfly individuals could occur anywhere in the Planning Area as occasional migrants. Individuals are most likely to occur in open space areas, but this species is not expected to form large overwintering roosts or to breed in the Planning Area.
Bay checkerspot butterfly (<i>Euphydryas editha bayensis</i>)	FT	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay.	Present. The only known extant occurrence of Bay checkerspot butterfly within the Planning Area is at Edgewood Park and Natural Preserve. USFWS-designated critical habitat for this species also overlaps with the western

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
			portion of the Planning Area at Edgewood Park. However, this species is not expected to occur in existing developed areas of the Planning Area.
Reptiles & Amphibians			
San Francisco garter snake	FE, SE, CFP	Vicinity of freshwater marshes, ponds and slow-moving streams. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	Unlikely. There are six known occurrences within five miles of Redwood City that are west of Highway 280, but there are no known occurrences within the Planning Area or the Redwood City Sphere of Influence. This species is likely absent, but project-specific analyses would be necessary to determine if suitable habitat is present in or adjacent to undeveloped areas with aquatic habitat.
Southwestern pond turtle <i>(Actinemys pallida)</i>	CSSC	Inhabits permanent or nearly permanent water in ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms, with basking sites, such as partially submerged logs, rocks, mats of floating vegetation, or mud banks. Nests in clay or sandy soils and grasslands in sunny areas surrounding aquatic habitats. May travel up to 1,300 feet from water to nest.	Possible. There are eight occurrences of this species in the region. These occurrences are west of Highway 280, and south of Sand Hill Road. There are no documented occurrences of this species within the Planning Area. However, streams and ponds within the area provide marginally suitable aquatic habitat for this species.
California tiger salamander <i>(Ambystoma californiense)</i>	FT, ST, CSSC	This species needs underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal wetlands for breeding.	Unlikely. There are two extant California tiger salamander occurrences within 5 miles of the site, in San Francisquito Creek and Lake Lagunita to the south. Ostensibly suitable underground habitat is present in grasslands in the Edgewood Park and Easter Bowl areas, but it is unknown if any suitable breeding habitat is present in the Planning Area. There is no connectivity between known occurrences and the Planning Area.
California red-legged frog <i>(Rana draytonii)</i>	FT, CSSC	Inhabits lowlands and foothills in or near permanent or nearly permanent sources of deep water with dense, shrubby or emergent	Possible. There are over a dozen documented occurrences of the California red-legged frog within region, but none within the

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
		riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Estivates in animal burrows, woody debris, and other moist refuges.	Planning Area. All occurrences are to the north, west, and south of the Planning Area. This species could be present in suitable habitat, particularly in more natural reaches of streams in the western portion of the Planning Area.
Birds			
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. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Present. Frequently observed along the Bay portion of Redwood City and in open space areas in the western portion of the City including Edgewood Park and Stulsaft Park (Cornell Lab of Ornithology 2022). Potential breeding and foraging habitat in these open space areas.
Burrowing owl <i>(Athene cunicularia)</i>	CSSC	Occurs in open, dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. Nests in small mammal burrows, particularly those of the California ground squirrel.	Present. Marginal patches of open habitat are present along Bay levees and in the western portion of the City limits in the Edgewood Park area. Burrowing owls have been recently documented in the southern portions of Bair Island as recent as February 2022 and are an occasional winter visitor in the City (Cornell Lab of Ornithology 2022). As of 2001 there is no documented breeding in the City (Sequoia Audubon Society 2001), but because ostensibly suitable habitat is present breeding cannot be ruled out.
Western snowy plover <i>(Charadrius nivosus nivosus)</i>	FT, CSSC	Nests on low, barren to sparsely vegetated saline managed pond levees and islands, at pond edges, and on salt panne areas of dry ponds.	Absent as breeder. Snowy plovers are infrequently observed in the Cargill salt ponds and Bair Island within Redwood City, as well as nearby Bayland habitat including Ravenswood ponds directly east of the Redwood City limits (Cornell Lab of Ornithology, SFBBO 2021). However, this species is not known to breed in Redwood City.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
California least tern (<i>Sterna antillarum browni</i>)	FE, SE	Nests along the coast on bare or sparsely vegetated, flat substrates. In San Francisco Bay, only known to nest at the former Alameda Naval Air Station. Forages for fish in open waters.	Absent as breeder. This species was previously known to breed at Bair Island within the Planning Area; however, least terns have not nested there since the late 1970's (CNDDDB 2022). The closed known breeding sites are at the Hayward Regional Shoreline area and Eden Landing in the East Bay (Sin 2021). This species may occur as an infrequent forager in Bayland habitat in the Planning Area but is not expected to breed in these areas.
Northern harrier (<i>Circus hudsonius</i>)	CSSC	Inhabits grasslands, meadows, marshes, and seasonal and agricultural wetlands. Nests in grassland and marsh habitats.	Present. Frequently observed in the eastern portion of the Planning Area along the Baylands and in the western portion of the Planning Area near Edgewood Park and Stulsaft Park (Cornell Lab of Ornithology 2022). Suitable nesting habitat is present in these areas of the City.
American peregrine falcon	CFP	Nests on ledges and caves on steep cliffs and human-made structures such as buildings, bridges, and electrical transmission towers.	Present. Frequently observed in the eastern portion of the Planning Area in the Baylands areas and in the western portion of the City in open space areas (Cornell Lab of Ornithology 2022). Could potentially breed within suitable habitat in open space areas in the Planning Area.
Salt marsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>)	CSSC	Nests in salt, freshwater, and brackish marsh habitat, riparian habitat, and moist scrub habitats with dense, continuous cover down to water surface for foraging; and tall grasses, tule patches and willows for nesting.	Present. Common yellowthroats are known to occur in the Planning Area. May nest in suitable habitat in the eastern Bayland areas, and along any riparian habitats in unchanneled portions of streams.
California black rail (<i>Laterallus jamaicensis coturniculus</i>)	ST, CFP	Occurs in tidal marshes with some freshwater. Nests primarily in pickleweed-dominated marshes bordered by taller vegetation such as bulrushes.	Possible. Suitable habitat is present in marsh habitat in the Bayside portion of the Planning Area.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>)	SE, FE, CFP	Occurs in salt marsh habitat dominated by pickleweed and cordgrass.	Present. California Ridgway's rails have been detected at Bair Island, Greco Island, and along Steinberger Slough in the eastern portion of the Planning Area (CNDDDB, Olofson Environmental, Inc. 2020).
Alameda song sparrow (<i>Melospiza melodia pusillula</i>)	CSSC	Inhabits <i>Salicornia</i> marshes, nests low in <i>Grindelia</i> bushes (high enough to escape high tides) and in <i>Salicornia</i> .	Present. Song sparrows are known to occur and may breed in suitable habitat in the Bayside portion of the Planning Area.
Black skimmer (<i>Rynchops niger</i>)	CSSC	Requires large areas with bare ground for roosting and nesting. Forages in shallow harbors, lagoons, bays, and estuaries, ponds, and channels.	Possible. This species is known to nest primarily in the south San Francisco Bay but has nested and infrequently roosts on isolated islands in the Redwood Shores area in the eastern portion of the Planning Area (Shuford et al. 2008).
Mammals			
Salt marsh harvest mouse (<i>Reithrodontomys raviventris</i>)	FE, SE, CFP	Occurs in diked and tidal wetlands supporting a mix of halophytic vegetation.	Present. There are several documented occurrences of this species in Bay coastal wetlands within and surrounding Bair Island (CNDDDB 2022).
Salt marsh wandering shrew (<i>Sorex vagrans halicoetes</i>)	CSSC	Occupies middle to high marsh 6–8 feet above sea level with abundant driftwood and common pickleweed.	Present. This species has been documented at Bair Island and near the west approach of the Dunbarton Bridge (CNDDDB 2022). Both occurrences are more than 30 years old. Shrews likely continue to be present marsh habitat in the Baylands portion of the Planning Area.
Pallid bat (<i>Antrozous pallidus</i>)	CSSC	Roosts in in cavities and crevices in caves, rock outcrops, buildings, bridges, and in trees hollows. Forages over a variety of habitats such as grasslands.	Possible. There are five documented occurrences within 5 miles of the City. All occurrences are more than 60 years old. There are no documented occurrences within the Planning Area. Suitable tree-roosting habitat may be present in open space areas of the Planning Area including in Edgewood Park, Emerald Hills, and Stulsaft Park.

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
Townsend’s big-eared bat (<i>Corynorhinus townsendii</i>)	CSSC	Roosts in caves, lava tubes, mine tunnels, and occasionally in basal hollows of trees such as redwoods, abandoned buildings, bridges in a variety of habitats.	Possible. There is some potential for this species to occur in more natural undeveloped areas or sparsely developed areas in the western portion of the Planning Area. Individual Townsend’s big-eared bats have been detected in an abandoned structure in the Emerald Hills neighborhood (personal observation by David Gallagher, senior biologist, MIG, 2020) within the Redwood City Sphere of Influence but outside the Planning Area, and approximately 2 miles to the north near Crystal Springs Road (iNaturalist 2022).
San Francisco dusky-footed woodrat (<i>Neotoma fuscipes annectens</i>)	CSSC	Occurs in a variety of habitats with moderate canopy and moderate to dense understory, including oak woodland, riparian, and scrub habitats. Constructs stick nests with downed tree and shrub litter, sometimes constructs nests in or on anthropogenic structures.	Possible. There are four documented occurrences in the Planning Area vicinity. Woodrats are likely present in open space areas where suitable habitat is present in the western portion of the City but may also occur in riparian areas elsewhere in the Planning Area as well.
<p>Federal: FE = Listed as endangered under the Federal Endangered Species Act. FT = Listed as threatened under the Federal Endangered Species Act.</p> <p>California: SE = Listed as endangered under the California Endangered Species Act. ST = Listed as threatened under the California Endangered Species Act. SC = State Candidate for Listing under the California Endangered Species Act. CSSC = Listed as a species of special concern in California. CFP = Listed as fully protected in California</p>	<p>California Rare Plant Rank (CRPR): 1B = Plants Rare, Threatened, or Endangered in California and Elsewhere 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere 3 = Plants about which more information is needed—a review list 4 = Plants of limited distribution—a watch list</p> <p>Threat Ranks 0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat 0.2 = Moderately threatened in California (20-80% occurrences</p>	<p>Potential Occurrence explanations: <i>Present.</i> There are recent documented occurrences of the species in the Planning Area based on CNDDB, iNaturalist, eBird, or other occurrence databases, <i>Possible.</i> Suitable habitat is present and there are documented occurrences of the species in the Planning Area and surrounding region. <i>Absent as Breeder.</i> Suitable breeding habitat is absent to support breeding, or the Planning Area is outside the breeding range of the species. <i>Unlikely.</i> No suitable habitat is present, the Planning Area is outside the range of the species, or there is no connectivity</p>	

**Table 4.4-2:
Federal- and State-Listed Species and other Special Status Species**

Species	Status	Habitat	Potential to Occur in The Planning Area
CNDDDB = Species tracked by the CNDDDB		threatened / moderate degree and immediacy of threat)	between the Planning Area and documented occurrences.

No special-status animals are expected to occur or breed in developed portions of the Planning Area. Several species have not been documented in the Planning Area, including within the Redwood City limits in the western portion of the Planning Area, but may occur based on the presence of suitable habitats.

Sensitive and Regulated Plant Communities and Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance since the state inception of the Natural Heritage Program in 1979. CDFW determines the level of rarity and imperilment of vegetation type; and tracks sensitive communities in its Rarefind database (CNDDDB 2022). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings reflect the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (CDFG 2007):

- G1/S1: Less than 6 viable occurrences or less than 2,000 acres.
- G2/S2: Between 6 and 20 occurrences or 2,000 to 10,000 acres.
- G3/S3: Between 21 and 100 occurrences or 10,000 to 50,000 acres.
- G4/S4: The community is apparently secure, but factors and threats exist to cause some concern.
- G5/S4: The community is demonstrably secure to ineradicable due to being common throughout the world (for global rank) or the state of California (for state rank).

State rankings are further described by the following threat code extensions:

- S1.1: Very threatened.
- S1.2: Threatened.
- S1.3: No current threats known.

In addition to tracking sensitive natural communities, CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 1995). If an alliance is marked G1-G3, all the vegetation associations within it will also be of high priority (CDFG 2007). CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations (CDFW 2022).

Natural Communities of Special Concern. There are two CDFW classified sensitive natural communities within the City: serpentine bunchgrass grassland and northern coastal saltmarsh. The serpentine bunchgrass grassland is confined to the northeastern corner of the City in Edgewood Park and the northern coastal salt marsh is confined to the Bayside of the City along Belmont Slough, Steinberg Slough, Bair Island, and Greco Island.

CDFW Stream/Riparian Habitat. Redwood City includes portions of two watersheds: Cordilleras Creek and Redwood Creek. These systems include numerous small, unnamed tributaries that drain into these creeks. Several creeks outside of Redwood City, including Belmont Creek in Belmont, Pulgas Creek in San Carlos, and Marsh Creek in Menlo Park, drain into sloughs that are within the City.

As described below under Regulatory Framework, the California Fish and Game Code includes regulations governing the use of, or impacts to, many of the state's fish, wildlife, and sensitive habitats, including the bed and banks of rivers, lakes, and streams. The riparian habitat that is associated with these streams up to the top of bank is subject to CDFW jurisdiction under Section 1600 et seq. of State Fish and Game Code.

Wildlife Movement and Nursery Sites

As stated in the Redwood City New General Plan Draft EIR (City of Redwood City 2010a), movement corridors for wildlife are limited in the Redwood City due to the density of urbanization (industrial, commercial, and suburban sectors). Wildlife movement corridors in the Planning Area occurs in daylighted sections of creek and associated riparian corridors; within natural habitat patches foothills in the southern and western portions of the Planning Area; and in the Baylands in the northern portion of the Planning Area. Bayland habitats in the northern portion of the Planning Area fall within the Pacific Flyway, which is an important route for migratory birds during their annual migrations. The Baylands provide food and resting sites for migratory birds that stopover in this area. Movement in the creeks is limited by physical barriers including surrounding development and culverts of some sections of Cordilleras Creek and Redwood Creek. These channels provide corridors for wildlife during low flow conditions, but during high flows they present movement barriers, even for fish (e.g., velocity barriers for in-migrating salmonids). Even though the urbanized sections of these creeks are not suitable for most wildlife species, they may be occasionally used for daily local movements by species adapted to urban habitats such as black-tail deer, raccoon, striped skunk, and Virginia opossum. Though movement by land mammals and other species is severely limited through the Planning Area, resident and migratory birds and bats also utilize the urban forest and riparian habitats for foraging, roosting and movement.

Bayland habitats in the northern portion of the Planning Area provide important wildlife nursery sites for a variety of species including Bay fishes, terrestrial and colonial waterbirds, and

mammals. Likewise, riparian areas along streams provide nursery sites for common urban-adapted wildlife, particularly birds, although other wildlife species, occasionally nest in these habitats. Natural habitats in open space areas in the foothills in the southern portion of the Planning Area; and urban forests also provide breeding and nursery sites for a variety of species as well.

4.4.2 Regulatory Framework

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats), which are formally listed, proposed for listing, or candidates for listing as endangered or threatened under FESA. FESA has the following four primary components: (1) provisions for listing species, (2) requirements for consultation with the United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), (3) prohibitions against "taking" (i.e., harassing, harming, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct) of listed species, and (4) provisions for permits that allow incidental "take." FESA also discusses recovery plans and the designation of critical habitat for listed species.

Both the USFWS and NOAA Fisheries share the responsibility for administration of FESA. Section 7 requires federal agencies, in consultation with, and with the assistance of the USFWS or NOAA Fisheries, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Non-federal agencies and private entities can seek authorization for take of federally listed species under Section 10 of FESA, which requires the preparation of a Habitat Conservation Plan (HCP).

Migratory Bird Treaty Act

The U.S. Migratory Bird Treaty Act (MBTA; 16 USC §§ 703 et seq., Title 50 Code of Federal Regulations [CFR] Part 10) states it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill; attempt to take, capture or kill; possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest or egg thereof..." In short, under MBTA it is illegal to disturb a nest that is in active use, since this could result in killing a bird, destroying a nest, or destroying an egg. The USFWS enforces MBTA. The MBTA does not protect some birds that are non-native or human-introduced or that belong to families that are not covered by any of the conventions implemented by MBTA.

Clean Water Act

The Clean Water Act (CWA) is the primary federal law regulating water quality. The implementation of the CWA is the responsibility of the U.S. Environmental Protection Agency (U.S. EPA). However, the U.S. EPA depends on other agencies, such as the individual states and the U.S. Army Corps of Engineers (USACE), to assist in implementing the CWA. The objective of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Section 404 and 401 of the CWA apply to activities that would impact waters of the U.S. The USACE enforces Section 404 of the CWA, and the California State Water Resources Control Board enforces Section 401.

Section 404. As part of its mandate under Section 404 of the CWA, the U.S. EPA regulates the discharge of dredged or fill material into “waters of the United States (U.S.)” “Waters of the U.S.” include territorial seas, tidal waters, and non-tidal waters in addition to wetlands and drainages that support wetland vegetation, exhibit ponding or scouring, show obvious signs of channeling, or have discernible banks and high-water marks. Wetlands are defined as those areas “that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3(b)). The discharge of dredged or fill material into waters of the U.S. is prohibited under the CWA except when it is in compliance with Section 404 of the CWA. Enforcement authority for Section 404 was given to the USACE, which it accomplishes under its regulatory branch. The U.S. EPA has veto authority over the USACE’s administration of the Section 404 program and may override a USACE decision with respect to permitting.

Substantial impacts to waters of the U.S. may require an Individual Permit. Projects that only minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits, provided that such permits’ other respective conditions are satisfied. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions (see below).

Section 401. Any applicant for a federal permit to impact waters of the U.S. under Section 404 of the CWA, including Nationwide Permits where pre-construction notification is required, must also provide to the USACE a certification or waiver from the State of California. The “401 Certification” is provided by the State Water Resources Control Board through the local Regional Water Quality Control Board (RWQCB).

The RWQCB issues and enforces permits for discharge of treated water, landfills, stormwater runoff, filling of any surface waters or wetlands, dredging, agricultural activities and wastewater recycling. The RWQCB recommends the “401 Certification” application be made at the same time that any applications are provided to other agencies, such as the USACE, USFWS, or NOAA Fisheries. The application is not final until completion of environmental review under CEQA. The application to the RWQCB is similar to the pre-construction notification that is required by the USACE. It must include a description of the habitat that is being impacted, a description of how the impact is proposed to be minimized and proposed mitigation measures with goals, schedules, and performance standards. Mitigation must include a replacement of functions and values, and replacement of wetland at a minimum ratio of 2:1, or twice as many acres of wetlands provided

as are removed. The RWQCB looks for mitigation that is on site and in-kind, with functions and values as good as or better than the water-based habitat that is being removed.

State

California Environmental Quality Act (CEQA)

CEQA (Public Resources Code Sections 21000 et seq.) requires public agencies to review activities which may affect the quality of the environment so that consideration is given to preventing damage to the environment. When a lead agency issues a permit for development that could affect the environment, it must disclose the potential environmental effects of the project. This is done with an “Initial Study and Negative Declaration” (or Mitigated Negative Declaration) or with an “Environmental Impact Report.” Certain classes of projects are exempt from detailed analysis under CEQA if they meet specific criteria and are eligible for a Categorical Exemption.

CEQA Guidelines Section 15380 defines endangered, threatened, and rare species for purposes of CEQA and clarifies that CEQA review extends to other species that are not formally listed under the state or federal Endangered Species acts but that meet specified criteria. The state maintains a list of sensitive, or “special-status,” biological resources, including those listed by the state or federal government or the California Native Plant Society (CNPS) as endangered, threatened, rare or of special concern due to declining populations. During CEQA analysis for a proposed project, the California Natural Diversity Data Base (CNDDDB) is usually consulted. CNDDDB relies on information provided by the California Department of Fish and Wildlife (CDFW), USFWS, and CNPS, among others. Under CEQA, the lists kept by these and any other widely recognized organizations are considered when determining the impact of a project.

California Endangered Species Act

The California Endangered Species Act (CESA; Fish and Game Code 2050 et seq.) generally parallels FESA. It establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Section 2080 of the California Fish and Game Code prohibits the take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or by the regulations. “Take” is defined in Section 86 of the California Fish and Game Code as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” This definition differs from the definition of “take” under FESA. CESA is administered by CDFW. CESA allows for take incidental to otherwise lawful projects but mandates that State lead agencies consult with the CDFW to ensure that a project would not jeopardize the continued existence of threatened or endangered species.

California Fish and Game Code Sections 1600-1607

Sections 1600-1607 of the California Fish and Game Code require that a Notification of Lake or Streambed Alteration application be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” CDFW reviews the proposed actions in the application and, if necessary, prepares a Lake or Streambed Alteration Agreement (LSAA or SAA), that includes measures to protect affected fish and wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) was created in 1977 with the intent to preserve, protect, and enhance rare and endangered plants in California (California Fish and Game Code sections 1900 to 1913). The NPPA is administered by CDFW, which has the authority to designate native plants as endangered or rare and to protect them from “take.” CDFW maintains a list of plant species that have been officially classified as endangered, threatened, or rare. These special-status plants have special protection under California law and projects that directly impact them may not qualify for a categorical exemption under CEQA guidelines.

Fully Protected Species and Species of Special Concern

The classification of California fully protected (CFP) species was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The Fish and Game Code sections (§5515 for fish, §5050 for amphibian and reptiles, §3511 for birds, §4700 for mammals) deal with CFP species and state that these species “...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species” (CDFW Fish and Game Commission 1998). “Take” of these species may be authorized for necessary scientific research. This language makes the CFP designation the strongest and most restrictive regarding the “take” of these species. In 2003, the code sections dealing with CFP species were amended to allow the CDFW to authorize take resulting from recovery activities for state-listed species.

California species of special concern (CSSC) are broadly defined as animals not listed under FESA or CESA, but which are nonetheless of concern to CDFW because they are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA, and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under CEQA during project review.

California Migratory Bird Protection Act

Fish & Game Code section 3513 states that federal authorization of take or possession is no longer lawful under the state Fish & Game Code if the federal rules or regulations are inconsistent with state law. The California Migratory Bird Protection Act (MBPA) was passed in September 2019 to provide a level of protection to migratory birds in California consistent with the U.S. MBTA before it was altered by Executive Order in 2017.

Nesting Birds

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” In addition, under California Fish and Game Code Section 3503.5, “it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Passerines and non-passerine land birds are further protected under California Fish and Game Code Section 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by CDFW.

Non-Game Mammals

Sections 4150-4155 of the California Fish and Game Code protects non-game mammals, including bats. Section 4150 states “A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A non-game mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.” The non-game mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a non-game mammal and are protected under California Fish and Game Code, in addition to being protected if they are a listed species (e.g., CSSC, CFP, state or federal threatened, or state or federal endangered).

Sensitive Vegetation Communities

Sensitive vegetation communities are natural communities and habitats that are either unique in constituent components, of relatively limited distribution in the region, or are of particularly high wildlife value. These communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW (i.e., CNDDDB) or the USFWS. The CNDDDB identifies a number of natural communities as rare, which are given the highest inventory priority (Holland 1986; CNDDDB 2022). Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA (CCR: Title 14, Div. 6, Chap. 3, Appendix G).

Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act (Porter-Cologne) is to protect water quality and the beneficial uses of water, and applies to both surface and ground water. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans, which identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne, referred to as “waters of the State,” include isolated waters that are not regulated by the USACE. Projects that require

a USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the State are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, any person discharging, or proposing to discharge, waste (e.g., soil) to waters of the State must file a Notice of Intent (NOI) or a Report of Waste Discharge and receive either waste discharge requirements (WDRs) or a waiver to WDRs before beginning the discharge.

State and Local Requirements to Control Construction-Phase and Post-Construction Water Quality Impacts

Construction Phase. The CWA has nationally regulated the discharge of pollutants to the waters of the U.S. from any point source since 1972. In 1987, amendments to the CWA added Section 402(p), which established a framework for regulating nonpoint source storm water discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES is a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the U.S. In California, this permit program is administered by the RWQCBs. The NPDES General Construction Permit requirements apply to clearing, grading, and disturbances to the ground such as excavation. Construction activities on one or more acres are subject to a series of permitting requirements contained in the NPDES General Construction Permit. This permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) to be implemented during project construction. The project sponsor is also required to submit a Notice of Intent (NOI) with the State Water Resources Control Board Division of Water Quality. The NOI includes general information on the types of construction activities that would occur on the site.

Post-Construction Phase. In many Bay Area counties, including San Mateo County, projects must also comply with the *California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (MRP)* (Water Board Order No. R2-2009-0074). This MRP requires that all projects implement BMPs and incorporate Low Impact Development practices into the design that prevents stormwater runoff pollution, promotes infiltration, and holds/slows down the volume of water coming from a site. To meet these permit and policy requirements, projects must incorporate the use of green roofs, pervious surfaces, tree planters, bioretention and/or detention basins, among other methods.

The McAteer-Petris Act

In response to uncoordinated and indiscriminate filling of the Bay, the California legislature passed the McAteer-Petris Act in 1965, establishing the San Francisco Bay Conservation and Development Commission (BCDC) as the management and regulatory agency for the San Francisco Bay and Delta. A permit must be obtained from the BCDC for shoreline projects; dredge and fill activities in the Bay or certain tributaries, salt ponds, or managed wetlands; and Suisun Marsh projects. The limits of BCDC jurisdiction are defined in the Bay Plan (BCDC 2012) and include a 100-foot wide band along the shoreline of the Bay. The “shoreline” is defined as all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos), and to the Sacramento River line (a line between Stake Point and Simmons Point, extended northeasterly to the mouth of Marshall Cut). In addition, the BCDC will take jurisdiction over the marshlands lying between mean high tide and up to 5 feet above mean sea level (MSL), where marsh vegetation is present; tidelands (land lying between mean high tide and

mean low tide); and submerged lands (land lying below mean low tide). In relation to salt ponds, the BCDC will claim jurisdiction of “salt ponds consisting of all areas which have been diked off from the Bay and have been used during the three years immediately preceding 1969 for the solar evaporation of Bay water in the course of salt production” (BCDC 2022).

Local Regulations

2010 Redwood City General Plan

The General Plan contains goals to protect fish, wildlife, and their habitats, including rare and endangered species, and to conserve and restore riparian vegetation and habitat. The following General Plan policies and programs from the Natural Resources Element and Urban Form and Land Use sections of the General Plan address these biological resources protection and restoration goals and implement the CEQA Guidelines:

Natural Resources Element

Policy NR-5.1: Restore, maintain and enhance Redwood City’s creeks, streams, and sloughs to preserve and protect riparian and wetland plants, wildlife and associated habitats, and where feasible, incorporate public access.

Policy NR-5.2: Limit construction activities to protect water quality in creeks and streams.

Policy NR-5.3: Except for floating home communities, marinas, and the infrastructure necessary for the communities and marinas, prohibit building and development activities to establish a creek buffer zone, based on the site and floodplain characteristics and/or where sensitive species, communities, or habitats occur within the creek or 100-year floodplain, unless construction methods or other methods can substantially minimize damage from potential flooding.

Policy NR-5.4: In conjunction with new development located along existing creeks and streams and where appropriate, incorporate daylighting for culverted portions or other bank naturalizing approaches for channeled sections as a means of creek and stream restoration.

Policy NR-5.5: Except for floating home communities, marinas, and infrastructure necessary for the communities and marinas, regulate, and perhaps restrict, new development, grading, fills, and other land disturbances located immediately adjacent to a creek, stream, or in a 100-year floodplain, unless construction methods or other methods to minimize potential damage from flooding are implemented.

Policy NR-5.7: Preserve and protect riparian vegetation including non-native vegetation that functions to shade the creek and provide wildlife habitat.

Policy NR-6.1: Ensure that new development minimizes encroachment into sensitive Baylands habitats and minimizes direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.

Policy NR-6.2: Restore and maintain marshlands including tidal flats, tidal marshes, and salt marshes as appropriate.

Policy NR-6.5: Take steps to reduce urban runoff into creeks and the Bay.

Policy NR-6.6: Consider protection of upland areas adjacent to wetlands as potential habitat.

Policy NR-7.1: Support appropriate stormwater pollution mitigation measures.

Policy NR-7.2: Encourage the use of site and landscape designs that minimize surface runoff and retain or detain stormwater runoff, minimizing volume and pollutant concentrations.

Policy NR-8.1: Pursue efforts to protect sensitive biological resources, including local, State and federally designated sensitive, rare, threatened, and endangered plant, fish and wildlife species, and their habitats.

Policy NR-8.2: Preserves and create contiguous wildlife habitat and movement corridors.

Program NR-22: Sensitive Biological Resources Identification. For development applications proposed for sensitive biological resource areas, require qualified biologists to identify and map all sensitive biological resources on the project site, including local, State and federally sensitive, rare, threatened and endangered plant, fish and wildlife species and their habitats; using methods and protocols in accordance with the USFWS, CDFG, and California Native Plant Society; and make recommendations for avoiding sensitive biological resources to the maximum extent feasible and pursuant to program BE-2 in Urban Form and Land Use Chapter of the Built Environment Element. These requirements shall be satisfied prior to approval of any development proposal for the site.

Program NR-23: Mitigate Adverse Impacts of Development. For new development proposals in the City in which unavoidable harm or removal of sensitive biological resources could occur, require the development of a compensation plan prior to City approval of any development proposal for the site. Compensation could include purchase of mitigation credits for the affected habitat types at an established mitigation bank, or preservation and enhancement of in-kind habitat types (preferably onsite). Required compensation ratios will be developed on a case-by-case basis in consultation with U.S. Army Corps of Engineers, California Department of Fish and Game, San Francisco Regional Water Quality Control Board, and/or the U.S. Fish and Wildlife Service.

Program NR-25: Creek Improvements. Wherever a new development or redevelopment project occurs on property containing or adjacent to an existing creek, require the project developer to improve and enhance the portion of the creek on or adjacent to the property, including daylighting and creek restoration wherever feasible. Permitted uses within creek buffer zones should be limited to habitat restoration, native riparian plantings, appropriate erosion control, trails, and flood control. Consider implementing a land banking system for critical open space areas along creek corridors.

Program NR-28: NPDES. Continue to comply with all provisions of the National Pollutant Discharge and Elimination System (NPDES) permit, and support regional efforts by the San

Francisco Bay Regional Water Quality Control Board (RWQCB) to improve and protect water quality.

Program NR-29: State and Federal Regulations. Endeavor to comply with State and federal regulations pertaining to habitat and wildlife preservation.

Program NR-30: SMCWPPP. Implement the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) performance standards in the protection of creeks, streams, and watersheds.

Program NR-31: Water Quality Improvement. Require the integration of water quality protection/improvement techniques (e.g., use of vegetated swales or landscaping for water drainage along streets and for expansive parking lots) for new development. As feasible, incorporate water quality techniques when completing street improvements.

Program NR-41: Tree Protection and Preservation Enforcement. Continue to enforce all ordinances pertaining to tree protection and preservation including the Street Tree Ordinance and Tree Preservation Ordinance.

Urban Form and Land Use Chapter of the Built Environment Element of the General Plan

Program BE-2: Environmental Review. Require environmental review of individual development applications pursuant to the California Environmental Quality Act (CEQA). The City will require that such review assess potential impacts to sensitive ecological and biological resources. The City will look for development approaches that avoid sensitive habitat and wildlife corridors. However, where avoidance is not possible, the City will require habitat enhancement or restoration, off-site mitigation, or any combination of these means. Other solutions emphasizing enhancement and restoration may result in the establishment of larger habitat areas or habitat of superior quality. In such cases, these approaches may be determined to be superior to avoidance. Use CEQA infill exemptions in precise plan and corridor areas, and as otherwise may be allowed pursuant to SB 375.

Local Ordinances

Street Tree Ordinance (Ord. No. 2153, § 1, adopted November 16, 1998)

The “Street Tree Ordinance” protects all city-owned trees growing within the public right-of-way. Trees growing in the public right-of-way (usually the area between the sidewalk and curb, and sometimes areas between the sidewalk and the home) cannot be planted, pruned, or removed without first securing a permit from the city. No fee is required for this permit.

Tree Preservation Ordinance (Ord. No. 1536, § 1, adopted June 26, 1972)

The “Tree Preservation Ordinance” protects trees on private property. Although they belong to the property owners, trees have an impact on the quality of life of our entire community. These trees grow in the City's urban forest and contribute as much, if not more, to the quality of life of a neighborhood than city-owned street trees and park trees. This ordinance governs trees of any species that have grown to a size greater than 12 inches in diameter (38 inches in circumference),

measured at the largest point between six inches and 36 inches above ground. For trees of this size, a permit is required prior to pruning or removal. No fee is required for this permit.

4.4.3 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, the Project could result in a significant impact if it would:

- A. Have a substantial adverse effect, either directly or 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.
- B. 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.
- C. 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.
- D. 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.
- E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- F. Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

4.4.4 Policies and Programs Related to Biological Resources Impacts

Section 4.4.2 (Regulatory Framework) above, would apply to development associated with implementation of the proposed Project. The Regulatory Framework requirements would be implemented, as applicable, within the framework of adopted County policies and programs, including specific regulatory agency, habitat, and species requirements. These adopted/established requirements are considered uniformly applicable to the updated policies and programs included in the proposed Project. With exception of actual development that would occur with implementation of the proposed Project's policies and programs, much of what is proposed in the Project would not specifically impact biological resources. Several new and revised policies and programs in the Housing Element and the Safety Element have the potential to impact biological resources. As a result, additional mitigation measures are proposed to avoid potential impacts of adopting the Project. The proposed policies and programs in the Safety Element, along with development that would result from adoption of the proposed Housing Element, are evaluated in this impact analysis and include the following:

Program PS-6.9a: Use the City's selected sea level rise projections in hydraulic/hydrodynamic modeling, as well as climate adaptation strategies.

Program PS-6.10a: Use existing natural features and ecosystem processes, or the restoration thereof, in sea level rise adaptation projects and strategies.

Program PS-50: Implement Comprehensive Flood Prevention Measures.

Policy PS-13.4: Continue to support and implement fuel management programs.

Program PS-13.1: New and Re-development Siting Requirements

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.9: Hazard Reduction Projects

Program PS-13.11: Establish Firebreak Areas

4.4.5 Impacts and Mitigation Measures

This section describes potential impacts related to biological resources which could result from the implementation of the Housing and Safety Elements and recommends mitigation measures, as needed, to reduce potentially significant impacts.

Impact BIO-1 – Would the Project have a substantial adverse effect, either directly or 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?

Analysis of Impacts

Housing Element. Most of the Opportunity Sites identified within the proposed Housing Element are located in existing developed areas of the Planning Area. In most of these areas, there is no habitat for special-status species (e.g., candidate, sensitive, or special status species in local or regional plans, policies, or regulations); thus, new housing in these areas would not impact special-status species. However, housing sites could be located on or adjacent to natural habitat, including areas along riparian corridors and streams, Bayland areas, grassland, forest, and woodland which have some potential to support special-status plant and animal species. These areas are generally situated within or near Edgewood Park, Emerald Hills and Farm Hills neighborhoods, Stulsaft Park, and areas near the Bay east of Highway 101 (see Section 4.4.1, Environmental Setting, above). Streams and aquatic features throughout the Planning Area (see Figure 4.4-2) cannot be entirely ruled out as having at least some potential to support special-status species. Potential direct impacts on special-status species that could result from implementation of the Housing Element include, but are not limited to, direct injury or mortality of individuals and loss of habitat that supports special-status species. Potential indirect impacts that could occur include, but are not limited, habitat modification or deterioration resulting from excess noise, lighting, or sedimentation or increased stormwater runoff.

Additionally, development resulting from the Housing Element could impact nesting birds and roosting bats. Developed and undeveloped areas in the Planning Area contain trees, other vegetation, and manmade structures that provide habitat for nesting birds, which are protected

by the federal Migratory Bird Treaty Act and California Fish and Game Code. Similarly, trees and vacant buildings can provide roosting habitat for bats, which are protected by California Fish and Game Code. If construction of new housing occurs during the bird nesting season (generally February 1 – September 15), bat maternity season (generally April 15 – August 31), or bat winter torpor season (generally October 15 – February 15) when bats are less active, it could directly impact nesting birds through the accidental removal of bird nests or bat roosts during tree removal, building abatement and demolition, and site preparation activities. In addition, indirect impacts from construction noise and activity could result in nest and roost failure or abandonment. Such impacts would be considered significant under CEQA.

Finally, Bay checkerspot butterfly critical habitat is present in the western portion of the Planning Area within the limits of Edgewood Park (Figure 4.4-4). However, development that would result from the Housing Element would not occur in this area (see Figure 4.4-4 and Figure 3.5 Housing Sites to Meet RHNA). Therefore, such development would not impact critical habitat for this species.

Development projects that would result from implementation of the Housing Element would be subject to environmental review and would be required to comply with applicable policies and implementing programs of the General Plan. Several relevant General Plan policies and programs protect wildlife habitats and ensure avoidance and minimization of impacts on special-status species and their habitats. Policies NR 5.1, NR-5.7, NR-6.1, NR-6.6, NR-8.1, focus on protection of wildlife habitats and sensitive species. Program **NR-22** requires that development projects are analyzed for sensitive biological resources by a qualified biologist and that recommendations are made to avoid and minimize impacts on sensitive species and their habitats. Program **NR-23** requires a compensation plan for impacts to sensitive habitats, which may support sensitive species, for development projects that result in unavoidable harm or removal of sensitive biological resources. Program **NR-29** encourages compliance with state and federal regulations pertaining to habitat and wildlife preservation. Although Program NR-29 is not a requirement, project proponents are required to comply with state and federal regulations protecting wetlands when implementing the Housing Element Update. Policies NR-5.2, NR-6.5, NR-7.1, and NR – 7.2, and Programs NR-28, NR-30, and NR-31 focus on the protection of water quality, which would also address potential indirect impacts on sensitive species potentially occurring in aquatic habitats. The City and future project proponents would comply with all the existing adopted policies and programs as well as state and federal regulations protecting special-status species when implementing the Housing Element. Although General Plan Programs NR-22 and NR-23 address identification of sensitive biological resources and mitigation for unavoidable harm or removal of sensitive biological resources, and other measures endeavor to minimize impacts on special-status species, there are no specific measures calling for avoidance of and/or compensation for impacts on potentially-occurring special-status plant or animal species (see Special-Status Plants, Special-Status Animals, and Table 4.4-2 above). The loss of habitat and/or injury or mortality of special-status plant or animal species resulting from implementation of the Housing Element would be significant.

Safety Element. The Safety Element’s proposed new and updated policies and implementation programs address Atmosphere, Climate Change, and Hazards Management, including geologic hazards, flooding, wildland fires, hazardous materials, aviation hazards, terrorism emergency preparedness, police services, and fire services. Proposed Safety Element policies and

implementation programs related to wildland fire protection to reduce the risk of wildland fires, and atmosphere and climate change resiliency policies and implementation programs that reduce the risk of flooding and inundation, have the potential to impact sensitive biological resources and are the focus of this analysis. Other public safety policies/programs addressed in the Safety Element related to air quality, geologic hazards, hazardous materials, aviation hazards, terrorism, emergency preparedness, police services, and fire services, would not have any impact on sensitive biological resources because they do not involve physical modification of natural habitats. Thus, those safety policies/programs are not discussed further in this chapter.

Sensitive vegetation communities and suitable habitats that could support special-status plant and animal species, including Bay Checkerspot butterfly critical habitat, are present in Wildfire Hazard Areas in the Planning Area, as shown in Figure 4.4-5. New and revised Safety Element Policy PS-13.4; and Implementation Programs PS-13.1, 13.5, 13.9, and 13.11 would require implementation of defensible space, and establishment or maintenance of firebreaks to restrict the spread of wildfire, and private and public road clearance. Such activities would result in vegetation removal and brush clearing in moderate, high, and very high wildfire hazard zones, which are located on the western portion of the Planning Area. This area is primarily composed of developed areas with little habitat for sensitive biological resources. However, the western portion of the Wildfire Hazards area contains coast live oak woodland and forest, mixed oak forest and woodland, chamise chaparral, California bay forest and woodland, and California annual grassland, serpentine bunchgrass, serpentine soils, and stream and associated riparian habitat which could support special-status plants and wildlife (Figures 4.4-1, 4.4-2, 4.4-3, and 4.4-5). Impacts that could occur as a result of vegetation removal include (1) physical or mechanical removal or destruction of special-status plants; (2) injury or mortality of special-status animals; (3) loss of suitable habitat supporting special-status plants and animals, including Bay checkerspot butterfly larval and adult food plants; (4) degradation of habitat from soil erosion and sedimentation, and leaks/spills of petrochemicals, hydraulic fluids, and solvents from equipment and vehicles.

Sensitive vegetation communities and suitable habitats that could support special-status animal species are present in Bayland habitats in the northern portion of the Planning Area, and stream/riparian habitat along the central portion of the Planning Area. New and revised Safety Element Implementation Programs PS-6-9a, PS-6.10a, and PS-50 call for new and enhanced levees and expanded tidal prisms. Bayland areas would be subject to physical improvements, particularly levee enhancement, and expansion of tidal prisms to protect the public from flooding and inundation from sea level rise, and creek enhancement activities. These activities could involve vegetation removal, earth moving, and placement of fill in habitats that support special-status species. Impacts that could occur as a result of vegetation removal and earth moving include injury or mortality of special-status animals; loss of suitable habitat supporting special-status animals; and degradation of habitat from soil erosion and sedimentation, and leaks/spills of petrochemicals, hydraulic fluids, and solvents from equipment and vehicles.

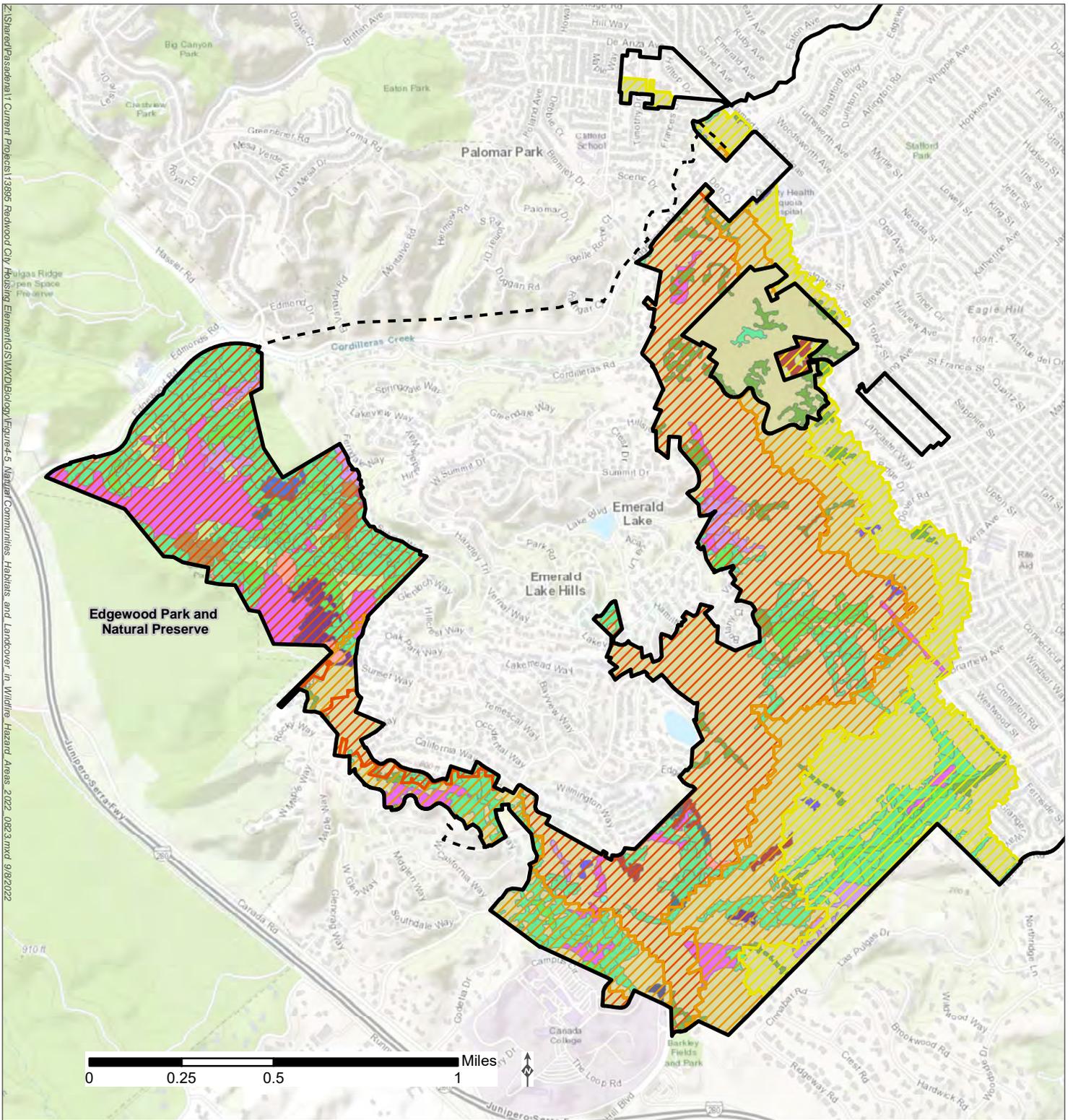
Additionally, vegetation removal associated with Safety Element projects such as fuel reduction projects, could impact nesting birds and roosting bats, which are protected by the federal Migratory Bird Treaty Act (birds) and California Fish and Game Code. If vegetation removal associated with Safety Element projects occurs during the bird nesting season, and the bat maternity or winter torpor season, these activities could directly impact nesting birds through the

accidental removal of bird nests or bat roosts. In addition, indirect impacts from construction noise and activity could result in nest and roost failure or abandonment. Such impacts would be considered significant under CEQA.

Vegetation removal and earth moving activities associated with Safety Element policies and implementation programs related to wildland fire and sea level rise protection would be subject to environmental review and would be required to comply with applicable adopted policies in the Natural Resources Element of the General Plan. Many of these policies are specific to development. However, several policies are more general and would ensure avoidance and minimization of impacts related to wildland fire and sea level rise protection of special-status species and their habitats. As described in the Regulatory Framework (Section 4.4.2), applicable policies that aim to avoid and minimize impacts of special-status species are Policies NR-5.2, NR-5.7, NR-8.1, NR-8.2, NR-28, NR-29, and NR-30. These policies require or endeavor to protect water quality, riparian habitats, sensitive biological resources, wildlife habitat, and wildlife movement corridors. The City and project proponents would comply with all the existing adopted policies, and would be obligated to comply with state and federal regulations protecting special-status species when implementing wildland fire policies of the Safety Element Update. Although General Plan Programs NR-22 and NR-23 address identification of sensitive biological resources and mitigation for unavoidable harm or removal of sensitive biological resources, and other programs endeavor to minimize impacts on special-status species, there are no specific measures requiring avoidance of and/or compensation for impacts on potentially-occurring special-status species (see Special-Status Plants, Special-Status Animals, and Table 4.4-2 above). The loss of habitat and or injury or mortality of special-status plant or animal species resulting from implementation of the Safety Element would be significant.

Level of Significance Before Mitigation

Significant.



Source: SMC 2019

Land Cover Types

- Adenostoma fasciculatum Alliance
- Arbutus menziesii Alliance
- Artemisia californica – (Salvia leucophylla) Alliance
- Baccharis pilularis Alliance
- Californian Annual & Perennial Grassland Mapping Unit
- Developed
- Eucalyptus (globulus, camaldulensis) Provisional Semi-Natural Association
- Forest Fragment
- Non-native Forest
- Pseudotsuga menziesii – Notholithocarpus densiflorus / Vaccinium ovatum Association

- Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni) Alliance
- Quercus agrifolia Alliance
- Quercus durata Alliance
- Quercus kelloggii Alliance
- Quercus lobata Mapping Unit
- Sequoia sempervirens Alliance
- Shrub Fragment
- Toxicodendron diversilobum – (Baccharis pilularis) Association
- Umbellularia californica Mapping Unit
- Water

Wildfire Hazard Zones

- Very High
- High
- Moderate
- Redwood City Boundary
- Sphere of Influence Boundary

Figure Number 4.4-5: Natural Communities, Habitats, and Landcover in Wildfire Hazard Areas

Mitigation Measures

Mitigation Measure BIO-1. Sensitive Biological Resources Identification: For development applications and implementation of Safety Element policies/implementation programs proposed in sensitive biological resource areas, a qualified biologist shall identify and map all sensitive biological resources on the project site, including local, State and federally sensitive, rare, threatened and endangered plant, fish and wildlife species and their habitats; using methods and protocols in accordance with the USFWS, CDFG, and California Native Plant Society, sensitive natural communities and regulated habitats; and make recommendations for avoiding sensitive biological resources to the maximum extent feasible and pursuant to program BE-2 in the Urban Form and Land Use Chapter of the Built Environment Element. These requirements shall be satisfied prior to approval of any development proposal, or wildland fire or sea level rise protection projects. The qualified biologist's report shall include a desktop analysis utilizing relevant resources including, but not limited to, the CNDDDB, National Wetlands Inventory, and VegCAMP; and a field survey covering the project site. A biological resources report or memo shall be prepared documenting the results of the evaluation, including maps and photos of sensitive biological resources and designated critical habitat. Additionally, the report shall include a description of existing vegetation; habitats; and aquatic features on the site; and an evaluation of the site to support sensitive biological resources, including nesting birds and roosting bats. Mitigation measures from the project-specific biological resources analyses shall be incorporated into the CEQA document for the project and/or adopted as project conditions of approval.

Mitigation Measure BIO-2a. Avoid Impacts to Special-Status Plant Species: The loss of special status plants should be avoided or reduced for each project site where potential habitat is present. Prior to consideration of any development project, a qualified botanist shall conduct a special-status plant survey, according to protocols established by the CNPS, CDFG, or the USFWS; identify and map special-status plants; and make recommendations for avoiding or mitigating impacts to special-status plants on the project site. Areas containing special-status plants that are to be avoided will be protected temporary environmentally sensitive area (ESA) fencing. Timing of field surveys and fencing should correspond with the blooming period when target species would be observable. If special status plants cannot be avoided, Mitigation Measure 2b shall be implemented.

Mitigation Measure BIO-2b. Compensate for the Loss of Special-Status Plant Species: If special status plants cannot be avoided, the City shall require the development of a compensation plan, including compensation for impacts to special status plant species through preservation, enhancement, and/or restoration of habitat to assist in the recovery of the species. The City shall require that any such compensation plans are incorporated in project plans and conditions of project approval.

Prior to construction, individual special status plant species within the work areas that may be impacted shall be enumerated, photographed, and conspicuously flagged to maximize avoidance, as well as to determine the total number of individuals affected. Seed collection from individuals with mature seed that are likely to be impacted should be collected and properly stored for post-construction propagation and re-establishment. The first six inches of topsoil within occupied habitat should be stored separately on site and protected from exotic weeds seed dispersal for the purpose of returning this soil horizon to its appropriate place in the profile in an attempt to salvage any viable seeds in the seed bank.

Mitigation Measure BIO-3. Consult with the USFWS if Federally-Protected Animal Species or Habitats Supporting these Species are Present: If habitats that potentially support special status species are found within or adjacent to a project area, the project proponent shall consult with the USFWS under Section 7 of the federal Endangered Species Act (or Section 10 if the project involves a federal action) and obtain all required federal permits and approvals and comply with all applicable federal requirements.

Mitigation Measure BIO-4. Consult with CDFG if Habitats Potentially Supporting the Southwestern Pond Turtle or Crotch Bumble Bee are Identified: If suitable habitats that potentially support southwestern pond turtle or the crotch bumble bee are found in a project area, the City shall require that the project proponent avoid these habitat areas, and implement avoidance measures required by the CDFG. If habitat cannot be avoided, mitigation measure BIO-2d shall be implemented.

Mitigation Measure BIO-5. Avoid Impacts on Active Burrowing Owl Nesting and Wintering Burrows: If active burrowing owl nesting or wintering burrows are found on or in the vicinity of a project area, the project proponent shall implement mitigation strategies to avoid, reduce or mitigate impacts to burrowing owls, as required by the CDFG.

Mitigation Measure BIO-6. Compensate for Impacts to Habitat for Special status species: The City shall require compensation for impacts to special status species habitat through preservation, enhancement, and/or restoration of habitat or assist in the recovery of the species. Project plans and conditions of approval shall incorporate all mitigation measures required by the USFWS and/or the CDFG.

Mitigation Measure BIO-7. Avoid Impacts on Nesting Birds: To avoid impacts to nesting birds and avoid potential violation of state and federal laws pertaining to birds, all construction of new housing and Safety Element projects (including but not limited to mobilization and staging, clearing, grubbing, tree removal, fence installation, demolition, and grading) and/or vegetation removal and ground disturbance should occur outside the avian nesting season (that is, prior to February 1 or after September 15). If construction and/or vegetation thinning or creation of fuel breaks occurs within the avian nesting season (from February 1 to September 15), all suitable habitats located within the project's area of disturbance including staging and storage areas plus a 100-foot for non-raptors and a 300-foot buffer for raptors around these areas shall be thoroughly surveyed, as feasible, for the presence of active nests by a qualified biologist no more than five days before commencement of any site disturbance activities and equipment mobilization. If project activities are delayed by more than five days, an additional nesting bird survey shall be performed. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the surveys shall be documented.

If pre-construction nesting bird surveys result in the location of active nests, no site disturbance and mobilization of heavy equipment (including but not limited to equipment staging, fence installation, clearing, grubbing, vegetation removal, fence installation, demolition, and grading), shall take place within 100 feet of non-raptor nests and 300 feet of raptor nests, or as determined by a qualified biologist, until the chicks have fledged.

Mitigation Measure BIO-8a. Bat Habitat Assessment: Prior to removal of trees or structures for housing development or fire hazard reduction, a qualified biologist shall conduct a bat habitat assessment of trees and structures to be removed, as well as surrounding trees and structures. The biologist shall search for large cavities and crevices in trees and structures that could support maternity roosts as well as habitat for special-status bat species. Signs of bats such as guano or the smell of bats shall also be noted. Results of the bat habitat assessment shall be documented.

If no suitable roosting habitat or signs of bats are found, then no further action is required, and the project may proceed as planned. If suitable roosting habitat or signs of bats are found, then Mitigation Measure 10 shall be implemented.

Mitigation Measure BIO-8b. Dusk Emergence Bat Survey: If suitable roosting habitat or signs of bats are found in trees or structures to be removed on a new housing site or fire fuel reduction area, a qualified biologist shall conduct a dusk emergence survey for roosting bats within 14 days prior to the removal of the tree(s) or structure(s). The biologist shall monitor all suitable roosting trees and structures at dusk for emerging bats, using acoustic equipment to identify the species. Results of the survey shall be documented.

If no roosting bats are found during the survey, then no further action is required, and the project may proceed as planned. If roosting bats are found during the survey, a disturbance-free buffer zone shall be established around the roost site during the maternity season (April 15-September 15), as determined by a qualified biologist until the maternity season is over. Outside the maternity season (April 15 – August 31) and winter torpor season (October 15 – February 15), roosting bats may be excluded from the tree(s) or structure(s) prior to tree removal as directed by a qualified biologist.

Mitigation Measure BIO-9. Require a Fuel Reduction Management Plan for Wildland Fire Protection Activities: The City or project proponents shall prepare a defensible space management plan to ensure that sensitive resources are not impacted by wildland fire protection activities. The plan shall be prepared by a wildland resources expert in coordination with a biologist/ecologist knowledgeable about the habitats and include but not be limited to the following:

- Describe the purpose of the management plan and focus on protection of biological resources while reducing fuels and meeting defensible space requirements.
- Identify the different vegetation treatments associated with the fuel reduction project.
- Describe the sensitive resources that occur or may occur in habitats that would be impacted and how they will be protected.
- Provide BMPs for fuel management, which shall include, but would not be limited to the following:
 - seasonal restrictions on removal of vegetation
 - restrictions on removal of native vegetation to the extent practicable
 - description of sensitive habitats to avoid
 - pre-activity surveys for sensitive species (e.g., special-status plants and wildlife)

4.4 – Biological Resources

- protection measures for sensitive species and sensitive vegetation communities (e.g., fencing)
- vegetation disposal guidelines
- describe protection measures for sensitive resources such as temporary fencing and worker environmental awareness training
- map sensitive resources with GPS or other method that allows them to be searched for in subsequent years
- biological monitoring requirements
- BMPs to protect water quality from unintentional spills and prevent erosion and sedimentation.
- BMPs to avoid the spread of invasive seeds

Level of Significance After Mitigation

With compliance with the relevant General Plan policies and programs, state and federal regulations protecting special-status species, and implementation of Mitigation Measure BIO-1, BIO-2a and 2b, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8a and 8b, and BIO-9, potential impacts on special-status species, including special-status plants, USFWS federally-protected animals, southwestern pond turtle, crotch bumble bee, burrowing owl, special-status species habitat, nesting birds, and roosting bats would be less than significant.

Sensitive Natural Communities

Impact BIO-2 – Would the Project 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Analysis of Impacts

Housing Element. Most of the Planning Area is developed, but riparian habitat, a sensitive regulated habitat, is present along portions of Redwood Creek, Cordilleras Creek and their tributaries. Additionally, the Planning Area supports several natural communities of special concern including serpentine bunchgrass grassland and northern coastal saltmarsh generally known from Edgewood Park and the Bay.¹ Though these sensitive resources cover a small proportion of the Planning Area, a portion of the Opportunity Sites in the Planning Area either overlap with these resources or are in proximity to these resources. Due to the presence of riparian habitat and other sensitive natural communities in the Planning Area, there is some potential that development resulting from implementation of the Housing Element Update could have direct and indirect impacts on these sensitive resources.

¹ Other sensitive natural communities may also be present in the Planning Area but would need to be evaluated on a project-by-project basis.

Potential direct impacts on existing riparian habitat or sensitive natural communities that could result from implementation of the Housing Element include, but are not limited to, loss of habitat via development of the habitat for housing or associated infrastructure. Potential indirect impacts that could occur include, but are not limited, habitat modification or deterioration resulting from excess sedimentation or increased stormwater runoff during construction and after project completion. Such impacts would be considered significant under CEQA.

As described above, development projects that would result from implementation of the Housing Element would be subject to environmental review and would be required to comply with applicable policies and implementing programs of the General Plan. Several relevant General Plan policies and programs protect riparian habitat and sensitive natural communities and ensure avoidance and minimization of impacts on these protected resources. Policies NR-5.1 to NR-5.5, NR-5.7, NR-6.5, NR-7.1, NR-7.2, NR-8.1; and Programs NR-22, and NR-28 to NR-31 are focused on the protection of streams and riparian habitats; restoring, maintaining, and enhancing stream buffers; protecting water quality; restoring culverted section of streams; regulation and restriction of construction adjacent to streams and floodplains; preservation and projection of riparian habitat; and compliance with state and federal regulations pertaining to sensitive habitats. Additionally, Program NR-22 requires that a qualified biologist identify and map all sensitive biological resources on development project sites and make recommendations for avoiding such resources to the maximum extent feasible. Program NR-23 requires a compensation plan for impacts to sensitive habitats for development projects that result in unavoidable harm or removal of sensitive biological resources. Program NR-25 requires developers to enhance or restore creeks, and their associated riparian habitats, when development occurs on a site containing or is adjacent to an existing creek.

Combined, these policies and programs require focused analyses of sites to understand their unique conditions regarding riparian habitats and sensitive natural communities, limit development impacts, and preserve riparian habitats and sensitive natural communities, as well as requiring coordination with trustee agencies when sensitive habitats may be impacted. The City and project proponents would comply with all the existing adopted policies, programs, mitigation measures and well as state and federal regulations protecting these resources when implementing the Housing Element. However, there is no specific policy or program requiring compliance with state and federal permits for projects that would impact sensitive and regulated habitats, or measures to avoid impacts on water quality. With compliance with the relevant General Plan policies and programs, state and federal regulations protecting riparian habitat and other sensitive natural communities, and implementation of Mitigation Measure BIO-1, BIO-10, BIO-11, and BIO-12, potential impacts on sensitive natural communities would be less than significant.

Safety Element. As noted above, sensitive riparian and serpentine bunchgrass grassland habitats are present in the western portion of the Planning Area, and riparian and northern coastal salt marsh habitats are present in the northern portion of the Planning Area that would be subject to wildland fire protection activities and sea-level rise activities, respectively (Figure 4.4-2, Figure 4.4-3, and Figure 4.4-5). As described under Impact BIO-1 above, new and revised Safety Element Implementation Programs PS-1 3.1, 13.5, 13.9, and 13.11 would require implementation of defensible space, and establishment or maintenance of firebreaks to restrict the spread of wildfire, and private and public road clearance. New and revised Safety Element Implementation

Programs PS-6-9a, PS-6.10a, and PS-50 call for enhanced levees and expanded tidal prisms. If such activities occur within or adjacent to the existing sensitive habitats, there is potential for these activities to result in the loss or degradation of these riparian habitat, serpentine bunchgrass grassland, northern coastal salt marsh, and other potentially-occurring sensitive habitats. Habitat loss would occur through direct vegetation removal for wildland fire protection and flood protection activities, and conversion of habitat associated with levee construction and other flood protection structures. Degradation of sensitive habitats could occur from trampling vegetation or soil compaction from equipment and vehicles; spread of non-native invasive seed carried by equipment, and from unintentional pollutant spills or erosion and sedimentation resulting from vegetation removal within or adjacent to these sensitive habitats.

As described in the Regulatory Framework (Section 4.4.2), applicable policies that aim to avoid and minimize impacts of riparian habitats and sensitive natural communities present within the Planning Area are Policies NR-5.7, NR-6.2, NR-7.1, NR-7.2, NR-28, NR-29, and NR-30. These policies require or endeavor to protect water quality, riparian and other sensitive natural communities. The City and project proponents would comply with all the existing adopted policies, programs, mitigation measures and well as state and federal regulations protecting these resources when implementing the Safety Element. However, additional avoidance and minimization measures specific to wildland fire and sea-level rise policies/implementation programs are necessary to ensure protection of sensitive natural communities from these activities. Compliance with the relevant General Plan policies, state and federal regulations protecting sensitive natural communities and Mitigation Measure BIO-1 above, and Mitigation Measures BIO-10, BIO-11, and BIO-12 below, would confirm that potential impacts on riparian habitat and other sensitive natural communities would be less than significant.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

Implement Mitigation Measure BIO-1.

Mitigation Measure BIO-10. Obtain Permits and Implement Conditions of State and Federal Permits for Impacts on Riparian Habitat, Wetlands, and Other Waters of the United States: Potential impacts to riparian habitat and wetlands are CDFG under Section 1600 of the California Fish and Game Code, and San Francisco Bay RWCQB. Potential impacts to wetlands are regulated by the USACE under Section 404 the CWA. Prior to any ground disturbing activities associated with development or Safety Element-related projects that could impact regulated habitats, and prior to the issuance of any grading or building permits within the Planning Area, the City shall require the project proponent to obtain all necessary permits pertaining to affected riparian habitat or Waters of the United States, including wetlands, stream channel, and open-water habitat regulated by the USACOE, CDFG, and San Francisco Bay RWQCB. Discharge of fill into Waters of the United States will require a CWA Section 404 permit from the USACOE and CWA Section 401 certification from the San Francisco Bay RWQCB. The permitting process will also require compensation for impacts to riparian habitat and wetlands.

Mitigation Measure BIO-11. Implement Best Management Practices to Control Invasive Weeds: The invasion and/or spread of noxious weeds during wildland fire protection projects and sea-level rise protection projects shall be avoided by the use of the following invasive weed BMPs:

- During project activities, all seeds and straw materials used on-site shall be weed-free rice straw (or similar material), and all gravel and fill material shall be certified weed-free.
- During project activities, or prior to equipment coming onto a project site, all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering the project site. Vehicles shall be cleaned at existing construction yards or legally operating car washes.
- If areas are to be left bare by wildland fire protection treatments, a standard erosion control seed mix from a local source and consisting of native species shall be planted on any disturbed ground.

Mitigation Measure BIO-12. Implement Best Management Practices to Prevent Pollutant Spills, and Erosion and Sedimentation near Sensitive Habitats: Erosion control and spill prevention measures shall be implemented prior to the start of Safety Element project-related activities that occur near riparian areas and associated aquatic habitat and shall remain in place throughout the construction duration. At a minimum, erosion and sedimentation best management practices shall include, but not be limited to, the following measures:

- Maintain spill prevention kits in proximity to riparian areas and other sensitive vegetation communities when using hazardous materials.
- Refueling or maintenance of equipment shall be conducted at least 50 feet from any riparian areas and associated aquatic habitats.
- Control exposed soil by stabilizing slopes with erosion control blankets or similar materials, and protecting riparian habitat and associated aquatic habitat with soil stabilization materials such silt fencing, sandbags, or straw wattles.
- Ensure that construction vehicles that are operated near riparian areas and other sensitive habitats are maintained daily to prevent leaks of fuels and solvents.
- All hazardous materials shall be stored in covered storage areas or secondary containment that is impervious to leaks and spills.
- All disturbed soils shall be revegetated or re-seeded with a native plant mix.

Level of Significance After Mitigation

Less than Significant.

Impact BIO-3 – Would the Project 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?

Analysis of Impacts

Housing Element Update. Most of the Planning Area is developed, but Bayland areas, especially those areas immediately north and south of Highway 101, areas west of Steinberger Slough in the eastern portion of the Planning Area and areas along streams, and undeveloped areas in the western portion of the Planning Area may support protected wetlands. Although these sensitive resources cover a small proportion of the Planning Area, there is some potential that development resulting from implementation of the Housing Element Update could have direct and indirect impacts on state or federally-protected wetlands.

Potential direct impacts on state and federally-protected wetlands that could result from implementation of the Housing Element include, but are not limited to, filling of wetlands via development for housing or associated infrastructure. Potential indirect impacts that could occur include, but are not limited to, habitat modification or deterioration resulting from excess erosion and sedimentation, spills, or increased stormwater runoff during construction and after project completion. Such impacts would be considered significant under CEQA.

Development projects that would result from implementation of the Housing Element Update would be subject to environmental review and would be required to comply with applicable adopted policies and implementing programs of the 2010 General Plan. Several relevant General Plan adopted policies and programs protect wetlands and ensure avoidance and minimization of impacts on these protected resources. Policies NR-5.1, NR-6.1, NR-6.6, and Programs NR-22, 23, and NR-29 aim to protect wetlands including Bayland habitats that may support wetlands; restore, maintain, and enhance wetland plants and associated habitats; minimize encroachment in wetland habitats and direct and indirect impacts on such habitats; and encourage protection of uplands surrounding wetlands. Additionally, Program NR-22 requires that a qualified biologist identify and map all sensitive biological resources, including wetlands, on development project sites and make recommendations for avoiding such resources to the maximum extent feasible. Program NR-23 requires a compensation plan for impacts to sensitive habitats for development projects that result in unavoidable harm or removal of sensitive biological resources. Program NR-29 encourages compliance with state and federal regulations pertaining to habitat preservation. Although Program NR-29 is not a requirement, project proponents are required to comply with state and federal regulations protecting wetlands that have potential to be impacted by housing development or associated infrastructure. Additionally, Programs NR-28, NR-30, and NR-31 would protect wetlands during construction and post-construction by continuing to require compliance with the local NPDES permit and SWPPP for San Mateo County. Program NR-31 requires other techniques to capture and treat runoff, which would indirectly protect wetlands.

Combined, these policies and programs require focused assessments of sites to understand their unique conditions regarding wetlands, limit development impacts, and preserve wetlands, as well as requiring coordination with trustee agencies when wetlands may be impacted. The City and project proponents would comply with all the existing adopted policies and programs and well as state and federal regulations protecting these resources when implementing the Housing Element. However, additional clarification is needed to ensure that the analyses described in Program NR-22 adequately evaluate baseline conditions on housing development resulting from the Housing Element and additional requirements for avoidance and minimization of wetland impacts are necessary to ensure protection of wetlands. The loss of wetlands resulting from housing required by the Housing Element would be significant. With implementation of Mitigation

Measures BIO-1, BIO-10, BIO-11, and BIO-12, potential impacts on wetlands would be less than significant.

Safety Element. State and federally-protected wetlands may be present in the western portion of the Planning Area and are present in Bayland areas in the northern portion of the Planning Area, which would be subject to wildland fire protection activities and sea-level rise activities, respectively (see Figure 4.4-2, Figure 4.4-3, Figure 4.4-5). As described under Impact BIO-1 above, new and revised Safety Element Update Implementation Programs PS-13.1, 13.5, 13.9, and 13.11 would require implementation of defensible space, and establishment or maintenance of firebreaks, and private and public road clearance. New and revised Safety Element Update Implementation Programs PS-6-9a, PS-6.10a, and PS-50 calls for enhanced levees and expanded tidal prisms. Wildland fire protection and sea-level rise activities that occur within or adjacent to wetlands could result in the removal and degradation of wetland vegetation. Sea-level rise activities could result in the fill of wetlands and removal of wetland vegetation during construction or enhancement of hard structures to combat flooding. Wildlife fire protection could also remove wetland vegetation. All activities could lead to the degradation of wetlands from trampling vegetation or soil compaction from equipment and vehicles; spread of non-native invasive seed carried by equipment; and soil erosion and sedimentation; and unintentional leaks/spills of petrochemicals, hydraulic fluids, and solvents from equipment and vehicles within wetlands.

As described in the Regulatory Framework (Section 4.4.2), applicable General Plan policies that aim to avoid and minimize impacts on wetlands within the Planning Area are Policies NR-5.1, NR-5.2, NR-6.2, NR-7.1, NR-22, NR-23, NR-28, and NR-30. As noted above, these policies require or endeavor to preserve and protect wetland plants, restore and maintain marsh habitats, and protect water quality in creeks and streams. Policies NR-22 and NR-23 require identification of sensitive biological resources and mitigation for unavoidable harm or removal of sensitive biological resources, including wetlands. The City and project proponents would comply with all the existing adopted policies, programs, and state and federal regulations protecting wetlands when implementing projects related to the Safety Element. However, additional measures would be necessary to ensure protection of wetlands from projects that would result from the Safety Element. Although General Plan Programs NR-22 and NR-23 address identification of sensitive biological resources and mitigation for unavoidable harm or removal of sensitive biological resources, and other programs endeavor to minimize impacts on wetlands, there are no specific measures requiring avoidance of and/or compensation for impacts on wetland habitats. The loss of wetlands resulting from implementation of the Safety Element would be significant. With implementation of Mitigation Measures BIO-1, BIO-10, BIO-11, and BIO-12, potential impacts on wetlands would be less than significant.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

Implement Mitigation Measures BIO-1, BIO-10, BIO-11, and BIO-12.

Level of Significance After Mitigation

Less than Significant.

Impact BIO-4 – Would the Project 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?

Analysis of Impacts

Housing Element. Development of individual housing sites may have a significant impact on movement corridors and nursery sites. Most of the proposed housing sites are located in existing developed areas and/or vacant lots surrounded by development. However, some developed portions of the Planning Area are adjacent to streams and riparian corridors (Redwood Creek, Cordilleras Creek, and Belmont Creek), and open space areas used by fish and urban-adapted wildlife in their daily local movements. Additionally, Bayland portions of the Planning Area are situated within the Pacific Flyway, a known avian migratory route. For those housing sites that are on developed sites that are surrounded by existing development, it is unlikely that housing development would interfere with local or migratory movements. However, for those sites that are in proximity to the Bay, streams and riparian corridors, or other areas with natural or semi-natural vegetation, there is some potential for development to impact local and migratory movements. For example, development projects adjacent to streams could directly impact movement of native fish if those projects require fill/modification to streams (e.g., outfall installation). Certain design features of new housing developments could increase lighting and reflective surfaces near movement and migratory corridors that could increase the risk of bird-building collisions. Additionally, undeveloped and developed sites supporting trees and other vegetation, and certain buildings, could support nesting birds and roosting bats. Thus, implementation of the Housing Element has the potential to impact wildlife movement, migratory corridors, and impede use of wildlife nursery sites.

Development projects that would result from the Housing Element Update would be subject to environmental review and would be required to comply with applicable adopted policies and implementing programs of the 2010 General Plan. Projects would also be required to comply with state and federal regulations protecting nesting birds and non-game mammals. Several relevant General Plan adopted policies and programs would protect wildlife movement corridors. Policy NR-8.2 specifically calls for the preservation and creation of contiguous wildlife habitat and movement corridors. Other policies that protect streams and riparian corridors (Policies NR-5.1 to NR-5.5, NR-5.7, NR-6.5, NR-7.1, NR-7.2, NR-8.1; and Program NR-25 described under Impact BIO-2), and additional policies that protect wetlands (Policy NR-6.1, NR-6.6 described in Impact BIO-3), which call for preserving, protecting, restoring, and enhancing these habitats, would also indirectly protect wildlife movement and migratory corridors. However, these policies and programs do not specifically address potential impacts of development on wildlife nursery sites, movement of native aquatic species, or building collision risks for birds. Implementation of Mitigation Measure BIO-7, BIO-8a and 8b would address potential impacts on native wildlife nursery sites. Should state and federal permits be required, per Mitigation Measure 10, for impacts on aquatic resources, protection of movement corridors for aquatic species (e.g., native fish) would be a requirement of those permits. However, additional measures are necessary to ensure that development projects resulting from the Housing Element do not impact movement

of native birds resulting from building collisions. Mitigation Measure BIO-13 below, would address potential building collision risks and ensure avoidance and minimization of potential impacts.

Safety Element. As described in the Environmental Setting Section (Section 4.4.1), movement corridors in the Planning Area occurs in daylighted sections of creek and associated riparian corridors, and within natural habitat patches in the foothills in the southern and western portions of the Planning Area, and in the Baylands in the northern portion of the Planning Area. Portions of the Planning Area that would be subject to wildland fire protection activities in the western portion of the Planning Area are largely developed with small undeveloped patches of open space and stream corridors. Movement corridors in this area where wildland fire protection activities would occur is likely limited to daily movements by species adapted to urban habitats such as black-tailed deer, raccoon, striped skunk, and Virginia opossum, bats, and resident and migratory birds. Edgewood Park, which is the largest area of open space in the Planning Area, is connected to open space to the north, but is bisected from open space to the west by Highway 280. Thus, this area also likely functions as an area of local movements for resident species and stopover habitat for migratory birds. In contrast, Bayland habitats in the northern portion of the Planning Area where sea-level rise protection activities may occur is within the Pacific Flyway, which is an important route for migratory birds during their annual migrations. Although areas that would be subject to safety element activities are in areas supporting local and migratory movements, these activities are not expected to result in barriers to movement. Noise and disturbance associated with Safety Element activities could cause wildlife species that commonly use habitats in the Planning Area to temporarily avoid moving through these areas. Because such impacts would be temporary, and wildlife would still be able to freely move around areas subject to Safety Element activities. Therefore, these impacts would be less than significant.

As described above for the Housing Element, areas that would be subject to Safety Element activities likely support vegetation that could support nursery sites for birds and bats. Vegetation removal associated with Safety Element projects, such as fuel management or levee enhancement projects, could result in take of active nests and bat roosts either through direct removal or cause abandonment of active nests or roosts through noise disturbance. With implementation of Mitigation Measures BIO-7, BIO-8a and 8b potential impacts on wildlife nursery sites would be less than significant.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

Mitigation Measures BIO-7, BIO-8a, and BIO-8b

Mitigation Measure BIO-13: Require uniformly applied standards for housing development projects that reduce the risk of avian collision. Design standards shall include but not be limited to reducing, amount of glass facades on new buildings; applying glass and façade treatments such as fritted and frosted glass, and addition of louvers and awnings in front of glass; avoidance, minimization, and treatment of glass railings and walkways near potential flight corridors;

4.4 – Biological Resources

avoidance of uplighting, light spillage, and use of green and blue lights; and use of motion sensing lights.

Level of Significance After Mitigation

Less than Significant.

Impact BIO-5 – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Analysis of Impacts

All housing development consistent with the Housing Element and all Safety Element projects that could impact sensitive biological resources would be subject to environmental review and would be reviewed for consistency with applicable policies and programs of the General Plan (see Regulatory Framework section, Local Regulations). Implementation of the proposed Project components that would be constructed by the City or other project proponents would be required to design those projects in a manner that is consistent with the relevant General Plan's policies, implementation programs, and ordinances. Additionally, the project proponents would have to comply with the City's Street Tree Ordinance and Tree Preservation Ordinance, which requires a permit for removal of protected trees and has standards for protecting retained trees during construction. The City would also comply with the provisions of these ordinances if any trees are planned to be removed during implantation of Housing and Safety Elements activities. Therefore, the Project would result in no impact related to potential conflict with local policies or ordinances.

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None Required.

Impact BIO-6 – Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Analysis of Impacts

There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans within or that affect the Planning Area. Because of this, the Project does not contain any goals or policies that address these types of plans. Therefore, the Project would not result in any conflicts with an adopted Habitat

Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Level of Significance Before Mitigation

No impact.

Mitigation Measures

None required.

4.4.6 References

[BCDC] Bay Conservation and Development Commission. 2022. San Francisco Bay Plan. Accessed April 2022 from https://bcdca.gov/plans/sfbay_plan.html.

[CDFG] California Department of Fish and Game. 2007. Vegetation Classification and Mapping Program List of California Vegetation Alliances and Rarity Ranking.

[CDFW] California Department of Fish and Wildlife. 2022. VegCAMP Natural Communities Lists. Accessed March 2022 from <https://www.wildlife.ca.gov/data/vegcamp/natural-communities>.

City of Redwood City. 2010a. A New General Plan for Redwood City Draft Environmental Impact Report: Section 4.4 Biological Resources. May 2010.

City of Redwood City. 2010b. Redwood City New General Plan Final Environmental Impact Report: 4.0 Mitigation Monitoring Reporting Program. August 2010.

[CDFW] California Department of Fish and Wildlife 2021. California Least Tern Breeding Survey, 2017 Season.

[CNDDDB] California Natural Diversity Database. 2022. Rarefind 5.0. California Department of Fish and Wildlife. Accessed June 2022 from <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>.

Cornell Lab of Ornithology 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: <http://www.ebird.org>. (Accessed: June 2022)].

[GGNPC] Golden Gate National Parks Conservancy, Tukman Geospatial LLC, Aerial Information Systems, National Park Service, Midpeninsula Regional Open Space District, County of San Mateo, San Francisco Public Utilities Commission, Peninsula Open Space Trust, San Mateo City/County Association of Governments. 2022 (March 30). San Mateo Fine Scale Vegetation Map. Accessed June 2022 at: <https://www.nps.gov/articles/000/san-mateo-fine-scale-vegetation-map-complete.htm>

iNaturalist. 2022. Available from <https://www.inaturalist.org>. Accessed May, 2022.

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Olofson Environmental Inc. 2021. California Ridgway's Rail Surveys for the San Francisco Estuary Invasive Spartina Project 2020. Prepared for The State Coastal Conservancy.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA.

[SFBBO] San Francisco Bay Bird Observatory. 2021. Western Snowy Plover Monitoring in the San Francisco Bay Annual Report 2021. February 11, 2021.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Sin, H. 2021. California least tern breeding survey, 2017 season. California Department of Fish and Wildlife, Wildlife Branch, Nongame Wildlife Program Report, 20121-xx. Sacramento, CA. 23 pp + Appendices.

[USFWS] U.S. Fish and Wildlife Service. 2008. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the Bay Checkerspot Butterfly (*Euphydryas editha bayensis*); Final Rule. Federal Register 73 (166):50406-50452.

The Xerces Society, Wildlife Preservation Canada, York University, University of Ottawa, The Montreal Insectarium, The London Natural History Museum, BeeSpotter. 2022. Data accessed from Bumble Bee Watch, a collaborative website to track and conserve North America's bumble bees. Available from <http://www.bumblebeewatch.org/app/#/bees/lists>. Accessed: June 2022.

4.5 Cultural Resources

This EIR chapter describes historic and archaeological resources, analyzes potential cultural resource impacts, and identifies mitigation measures, if required.

4.5.1 Environmental Setting

Below is a brief description of the City's history, as well as known archaeological and historic resources. This information was taken from the Cultural Resources analysis prepared for the General Plan EIR in 2010; please see that document for additional details.

Pre-Historical Background

The indigenous people known as the Ohlone, known throughout California as Coastanoans, or "coastal people," lived in the region for thousands of years. The Ohlone lived along the bay shores, foothills, and hills of the Peninsula, subsisting on plentiful food resources, particularly those available from the bay. An estimated 7,000 indigenous people were living in this community when Spanish explorers first arrived in the last half of the 18th century. As a semi-nomadic people, Ohlone culture is evidenced by shell mounds left in areas of temporary occupancy. One such mound was located at Main Street near Woodside Road and another near the Union Cemetery. These two shell mounds have since been leveled and built upon.

European Exploration and Settlement

Spanish exploration in the mid-18th century led to the establishment of permanent settlements along the coast, mostly in the form of missions. No buildings or structures directly related to the Spanish explorers remain in the Planning Area. In 1777, Mission Santa Clara was founded approximately 20 miles south of the Planning Area. Spanish colonization, through the Mission system, eventually decimated the Ohlone population through introduced diseases and forced labor.

In 1835, a 69,120-acre land grant from Mexico established Rancho de Las Pulgas, an area that included all of modern-day Redwood City, except for the marsh land area adjacent to the bay. The area was owned and managed by the Arguello family. The ranch raised livestock, and produced hides, tallow, and redwood products. These goods were shipped to San Francisco via the bay on rafts, as the area's proximity to tidal action allowed for this transportation method. The area where shipments embarked became known as "El Embarcadero," and was located in the vicinity of Broadway and parallel to Main Street.

Gold Rush Era

During the Gold Rush era (in the years following 1848), there was a large population influx of immigrants and gold seekers to California. The Planning Area developed into an important shipping point during this time. Lumbermen and merchants realized that the "Redwood Embarcadero," as it was then known, would be a good shipping point for their goods. Earlier

lumbermen and merchants also constructed wood frame warehouses, shops, stores, saloons, and a hotel, which were the earliest construction along the thoroughfares that became Main Street and Broadway.

Mezesville

Following the gold rush boom, immigrant populations settled on the extensive holdings of Rancho de las Pulgas. The Arguello family was forced to defend its ownership of these lands. They were assisted by Legal Agent Simon M. Mezes in successfully establishing clear title for the rancho. In exchange, Mezes was granted title to a portion of the Rancho de las Pulgas land, which included the area that would become the central area of the City. He surveyed, planned, and established Mezesville on a portion of these lands, located in the vicinity of the Embarcadero and northeast of El Camino Real. The new Mezesville streets were arranged in a regular grid of blocks and lots, with El Camino Real as the southern and western boundary.

Early Industries (1850-1905)

The City was relatively self-sustaining after its incorporation in 1868. The blocks in the vicinity of Main Street and Broadway continued to serve as a business center for the town, where lumber, shipping, tannery, warehouse, and retail uses continued to thrive. Commercial and residential development during the 1850s and 1860s reflected popular Victorian Era designs and construction types.

Economic Development (Earth Twentieth Century)

Industries in the Planning Area had long been located near the tide land areas on either side of Redwood Creek. In 1904, the Alaska Codfish Company established itself on Greco Island, located south of the mouth of Redwood Creek on the Bay, and became an important local employer. The company had thirty buildings on the island as well as a wharf, and a fleet of five sailing vessels. Morgan Oyster Company, with headquarters on Steinberger Slough, operated oyster beds in the bay for about fifty years starting in the late 1870s. Various sea salt harvesting companies became important in the early 1900s followed by manufacturers of aniline dyes, magnesia (insulation), and cement and aggregate production in the 1910s. An economic resurgence in the 1920s was fueled by the success of the salt industry. One of the most successful operations was Leslie Salt Company, which built a 460-foot loading dock and two loading towers at the Port of Redwood in 1951. Leslie Salt Company was later purchased and operated by Cargill, Inc. In the latter half of the 20th century, the Peninsula became home to a thriving technological sector. AMPEX Corporation was founded during this time and moved to the Planning Area in 1951. The company became a leading innovator in tape recording equipment and developed the first practical video tape recorder.

Residential Development

By 1930, Redwood City had 9,000 residents and in spite of the Great Depression, residential development continued. Throughout the decade, the population increased by 4,500 residents, with continued industrial and commercial growth. Neighborhoods such as East Central and West Central date from this pre-World War II growth period. The City began to expand rapidly during and after World War II, growing from about 12,500 as the war began to more than 46,000

in 1960. The City annexed adjacent areas until it shared boundaries with Menlo Park, Atherton, and San Carlos. The City also expanded into previously unincorporated San Mateo County along portions of El Camino Real. The booming post-war era brought large subdivision type residential development that reached farther south and westward into the hillsides with residential tracts like Woodside Terrace and Farm Hills. Many of the new residents worked in the bayside industrial complexes, such as AMPEX.

In the mid-1960s, the City annexed 25 square miles of tide lands and salt ponds and more than doubled the land area of the City. A large part of the new annexation was developed into the planned community project known as Redwood Shores. Single family homes, condominiums, parks, docks, offices, and commercial buildings were constructed in the 1960s and 1970s, including the first site of the Marine World amusement park. Development stalled temporarily in the late 1970s. Mobil Oil then purchased the development area, and the Redwood Shores area resumed growth in the early 1980s. The Oracle Corporation moved into the former Marine World property in 1989 and eventually purchased it, removed the theme park, and constructed its corporate headquarters on the site where it remains at the present day.

Archaeological Resources

Generally, Native American related archaeological resources in this portion of San Mateo County have been found in areas near the San Francisco Bay, on inland ridges, on midslope benches, and in valleys near intermittent and perennial watercourses. The Planning Area contains each of these environmental settings and features. As such, there is a high likelihood that unrecorded Native American cultural resources exist in the Planning Area.

Historic Resources

The Planning Area contains many buildings that are over 50 years of age and numerous properties that are considered to be historically significant. These resources are either eligible for, have been determined eligible for, or are listed in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and/or the Redwood City Inventory of Historical Resources. These properties are considered historical resources for the purposes the California Environmental Quality Act (CEQA).

The City of Redwood City Historic Resource Advisory Committee (HRAC), Planning Commission, and City Council have identified five historic districts in the Planning Area. The City's five historic districts include:

- Main Street Historic District; City Council Res. No. 14474 (10/28/2002) Local District; Status Code 7J (includes Redwood City Historic Commercial Buildings District, below) – Listed 2002
- Redwood City Historic Commercial Buildings District, (listed NRHP 1977, #7700033) NRHP District; Status Code 1D (encompassed within Main Street Historic District, above) – Listed 1997
- Stambaugh Heller Historic Residential District; City Council Res. No. 11047 (6/5/1989) Local and California Register of Historical Resources District; Status Code 2D – Listed 1989

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- Mezesville Historic District; City Council Res. No. 14723 (7/24/2006) Local District; Status Code 3D - Listed 2006
- Sequoia Union High School Historic District; City Council Res. No. 10967 (1/3/1989); (Listed NRHP 1995, #95000389) NRHP District; Status Code 1D – Listed 1989

4.5.2 Regulatory Framework

Federal

National Historic Preservation Act (of 1966 (54 U.S.C. 300101 et seq., formerly 16 U.S.C. 470 et seq.) (NHPA)

This law was enacted to prevent unnecessary harm to historic properties. The NHPA includes regulations that apply specifically to federal land-holding agencies, but also includes regulations ("Section 106"; 54 U.S.C. 306108) that pertain to all projects funded, permitted, or approved by any federal agency that have the potential to affect cultural resources. Provisions of the NHPA establish a National Register of Historic Places (NRHP); the Advisory Council on Historic Preservation; State Historic Preservation Offices; and federal grants-in-aid programs.

National Environmental Policy Act of 1969 (42 U.S.C. 4321 and 4331-4335, as amended) (NEPA)

The act establishes guidelines to “preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.” All projects that are subject to NEPA are subject to compliance with Section 106 of the NHPA (54 U.S.C. 306108) and NEPA requirements concerning cultural resources.

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996 and 1996a, as amended) and Native American Graves and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., as amended)

These acts establish as national policy that traditional religious practices and beliefs, sacred sites (including right of access), and the use of sacred objects shall be protected and preserved. Native American remains are further protected by the Native American Graves Protection and Repatriation Act of 1990.

Secretary of the Interior’s Standards

The Secretary of the Interior is responsible for establishing professional standards and providing guidance related to the preservation and protection of all cultural resources listed in, or eligible for listing in, the National Register of Historic Places. The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and the Secretary of the Interior’s Guidelines for Rehabilitating Historic Buildings and the Guidelines on Sustainability for Rehabilitating Historic Buildings apply to all grants-in-aid projects assisted through the Historic Preservation Fund, and are intended to be applied to a wide variety of historic preservation and community projects and resources focused on heritage preservation, including buildings, structures, sites, objects, and districts.

National Register of Historic Places (NRHP)

Archaeological and historical sites can be given a measure of protection if they are eligible for the NRHP. The criterion most often applied to archaeological sites addresses the potential of a site to yield information important in prehistory or history. The NRHP criteria, and other information issued by the Advisory Council on Historic Preservation, present the legal measures of significance relevant to cultural resources. The NRHP criteria are the following:

- The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of significant persons in our past;
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack distinction; or
- Have yielded, or may be likely to yield, information important to history or prehistory.

State

California Environmental Quality Act (Public Resources Code 21000 et seq.) (CEQA)

Section 15064.5 of the CEQA Guidelines (California Code of Regulations Title 14, section 15000 et seq.) requires lead agencies to determine whether proposed projects requiring discretionary government approval may have a significant effect on historic, archaeological, or tribal cultural resources. This determination applies to cultural resources that meet significance criteria qualifying them as “unique” or “of importance,” or are listed or determined eligible for listing on the California Register of Historical Resources (CRHR). If a project may have an adverse effect on a unique or important historical or cultural resource, the project is determined to have a significant effect on the environment, and the effect must be mitigated. Under CEQA, a historical resource need not be listed on a local, State, or federal list of historic resources to meet the CEQA impact criteria requiring mitigation.

The CEQA Guidelines specify that when a proposed individual project may adversely affect a CEQA-defined historic resource, the lead agency is required to carefully consider the possible project impacts on the historic resource before proceeding (Public Resources Code section 21084 and subsection 21084.1). In determining if there is a significant impact on one or more historic resources, the CEQA Guidelines essentially call for a two-part test: (1) is the resource "historically significant," and (2) would the project cause a "substantial adverse change" in the significance of the resource? Under section 15064.5(a) of the CEQA Guidelines, a historic resource shall be presumed to be historically or culturally significant if it is:

- A. A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (Public Resources Code section 5024.1, Title 14 CCR, section 4850 et seq.).

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- B. A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code, or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- C. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR (Public Resources Code section 5024.1, Title 14 CCR, section 4800.3) as follows:
1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 2. Is associated with the lives of persons important in our past;
 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
 4. Has yielded, or may be likely to yield, information important in prehistory or history.

California Register of Historical Resources (CRHR)

Under the CRHR (and almost identical to CEQA thresholds C.1 through C.4, directly above), a historical resource may be determined significant under one or more of the following four criteria:

- A. 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;
- B. It is associated with the lives of persons important to local, California, or national history;
- C. 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
- D. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

California Senate Bill 18 (Chapter 905, "Traditional Tribal Cultural Places")

Senate Bill 18 requires cities and counties to conduct consultations with Native American tribes before local officials adopt or amend their general plans. These consultations are for preserving or mitigating impacts to Native American historic, cultural, sacred sites, features, and objects

located within the city or county. A tribe has 90 days from the date of contact to request a consultation, unless the tribe agrees to a shorter timeframe. Senate Bill 18 also added a new topic that must be addressed in the general plan open space element: open space land for the protection of Native American historic, cultural, sacred sites, features, and objects.

California Assembly Bill 52 (Chapter 532, amends and adds sections to the Public Resources Code, relating to Native Americans)

Assembly Bill 52 (AB 52) 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. AB 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if (1) the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area, and (2) the tribe then timely requests formal consultation for that particular proposed project after receiving notification of the project. Consultation must be completed prior to releasing a negative declaration, mitigated negative declaration, or environmental impact report.

AB 52 requires the Native American Heritage Commission to provide each California Native American tribe with: (1) a list of all public agencies that may be a lead agency within the geographic area in which the tribe is traditionally and culturally affiliated, (2) the contact information of those agencies, and (3) information on how the tribe may request those public agencies to notify the tribe of projects for the purposes of requesting consultation.

Native American Heritage Commission (NAHC)

The NAHC, established in 1976, was created to identify and catalog cultural resources (i.e., places of special religious or social significance to Native Americans, and known graves and cemeteries of Native Americans on private lands) in California. The Commission is charged with the duty of preserving and ensuring accessibility of sacred sites and burials, the disposition of Native American human remains and burial items, maintaining an inventory of Native American sacred sites located on public lands, and reviewing current administrative and statutory protections related to these sacred sites. Among the functions of the NAHC is maintenance of lists of Native American Contacts and Most Likely Descendants. The NAHC authorizes Most Likely Descendants the right to determine the treatment, disposition, and analysis of Native American remains.

California Historical Landmarks (CHLs)

CHLs are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource must also be approved for designation by the County Board of Supervisors or the City or Town Council in whose jurisdiction it is located, be recommended by the State Historical Resources Commission, or be officially designated by the Director of California State Parks. To be eligible for designation as a Landmark, a resource must meet at least one of the following criteria:

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- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California); or
- Associated with an individual or group having a profound influence on the history of California. A prototype of, or an outstanding example of, a period, style, architectural movement or construction or one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest.

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest (Point or Points) designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a Landmark and a Point. If a Point is later granted status as a Landmark, the Point designation will be retired. In practice, the Point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a Point, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (city or county).
- Associated with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

Local

Redwood City General Plan

The Built Environment Element of the City's existing General Plan specifies the following goals, policies, and implementation programs for the community's historic buildings and features:

GOAL BE-4: Preserve community character and historic buildings while attracting new infill development and investment in Historic Influence High Density Neighborhoods.

Policy BE-4.2: Encourage carefully designed and sensitive infill development that creates harmony and compatibility with nearby structures of historic value and merit. Require new development to integrate with the site patterns and building character.

Policy BE-4.3: Explore alternatives and adopt regulations that encourage and incentivize the reuse and rehabilitation of historic or high quality and compatible existing buildings.

GOAL BE-5: Retain the unique character of the Historic Influence Low Density Neighborhoods.

Policy BE-5.1: Require that new construction, additions, renovations, and infill development be sensitive to neighborhood context, historic development patterns, and building form and scale (for example, second stories, detached garages, setbacks, enhanced front entrances.)

Policy BE-5.2: Require that residential units be designed to sustain the high-level of architectural design quality that characterizes Redwood City's Historic Influence Low Density Neighborhoods.

Policy BE-5.3: Strengthen neighborhood identity with new development that is architecturally compatible with surrounding structures.

Policy BE-5.4: Strengthen connections between Historic Influence Low Density Neighborhoods and schools, parks, community facilities, and local commercial uses.

GOAL BE-6: Preserve the character and enhance the quality of Post-War Neighborhoods.

Policy BE-6.1: Ensure that new development is compatible with the established character of individual Post-War Neighborhoods.

Policy BE-6.2: Create new connections to commercial uses, schools, parks and recreational areas, and transit from Post-War Neighborhoods.

Policy BE-6.3: Encourage quality design in Post-War Neighborhoods, including articulation and modulation of building masses and elevations; compatibility with neighborhood development in terms of density, scale, and streetfacing elevations; architectural treatment of all elevations visible from public places; and orientation to the street.

Policy BE-10.8: Whenever possible, encourage new development in Waterfront Neighborhoods to take shape as extensions of the urbanism of Redwood City, with street patterns of a similar scale to historic areas, buildings fronting those streets, and with good connections between adjacent projects.

Policy BE-14.2: West of Woodside Road, preserve and strengthen the long-established residential and historic character of the surrounding neighborhoods, maintaining a general lower-scale quality, yet high density quality. Develop design guidelines that respond to established forms and styles.

Goal BE-36: Identify, study, and document historic resources.

Policy BE-36.1: Develop a detailed strategy for on-going survey and identification of historic resources.

Policy BE-36.2: Develop city-wide narrative context for historic resources.

Policy BE-36.3: Continue to maintain the Historic Resources Inventory in a digital format that can be easily updated and tracked.

Goal BE-37: Protect, preserve, restore, rehabilitate, and/or enhance historic resources.

Policy BE-37.1: Protect historic resources throughout the City.

Policy BE-37.2: Preserve historic landmark structures, landscapes (including trees), trails and natural places, and sites that serve additional community needs, such as recreational open space and/or cultural needs.

Policy BE-37.3: Encourage the retention and/or adaptive reuse of historic residential, commercial, and industrial buildings.

Policy BE-37.4: Consider relocation of landmark structures to vacant sites within established landmark districts when no other alternative exists for their preservation, or if a particular structure is not protected by ordinance.

Policy BE-37.5: Provide incentives, support, and guidance to the owners of designated historic landmark sites to preserve and rehabilitate structures.

Policy BE-37.6: Allow only compatible, historically appropriate development on vacant parcels within or adjacent to designated historic areas, neighborhoods, and/or sites in compliance with the Secretary of Interior's Standards.

Policy BE-37.7: Strive for compatibility with existing historic resources when planning for infrastructure improvements, restorations, new construction, alterations, or similar projects in designated historic districts.

Policy BE-37.8: Permit removal of non-contributing elements of structures in or adjacent to designated historic resources to allow replacement by compatible, historically appropriate structures.

Goal BE-38: Establish robust programs and activities that educate the public about the history and historic resources of Redwood City.

Policy BE-38.1: Encourage public knowledge, understanding, and appreciation of Redwood City's role in local and regional history.

Policy BE-38.2: Foster civic and neighborhood pride and a sense of identity based on the recognition and use of historic and cultural resources.

Policy BE-38.3: Advocate the preservation and appropriate rehabilitation of historically significant properties and structures.

Policy BE-38.4: Support and consult with private associations, groups, non-profit organizations, corporations, school districts, and public agencies with an interest in historic preservation of significant historic resources.

Policy BE-38.5: Continue to offer educational benefits on local history through the National Trust Historic Preservation Month activities.

Policy BE-38.6: Develop historic walking programs using historic markers, plaques, and maps for public benefit.

Goal BE-39: Emphasize and showcase the historic resources and unique character of Downtown Redwood City.

Policy BE-39.1: Encourage historical resources and sites to be rehabilitated or reused in a historically compatible manner.

Policy BE-39.2: Encourage uses that generate pedestrian activity within the designated Downtown historic commercial districts and landmarks.

Policy BE-39.3: Ensure that infrastructure, streetscape, signage, and other improvements and amenities respect the historic character of Downtown.

Policy BE-39.4: Reestablish public awareness, where appropriate, of the historical significance of Redwood Creek within Downtown.

The Housing Element of the City's existing General Plan specifies the following goals, policies, and implementation Programs for the community's historic buildings and features:

Policy H-1.4: Promote the preservation of historically and architecturally significant buildings and the quality of historic neighborhoods through land use, design, and housing policies.

Historic Preservation Ordinance (Ord. No. 1815, § 1, adopted March 10, 1980)

The purpose of this Ordinance is to promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation, and use of improvements, buildings, structures, signs, objects, features, sites, places, and areas within the City that reflect special elements of the City's historic, architectural, cultural, aesthetic, and other heritage. An improvement may be designated an historic landmark or historic site by the City Council, and any area within the City may be designated an historic district by the City Council pursuant to Section 40.7 of the Ordinance, if it meets the following criteria or other criteria established by the Planning Commission pursuant to Section 40.5 of the Ordinance:

- A. It exemplifies or reflects special elements of the City's cultural, aesthetic or architectural history;
- B. It is identified with persons or events significant in local, State or national history;
- C. It embodies distinctive characteristics of a style, type, period or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or
- D. It is representative of the notable work of a builder, designer or architect.

Historic Resources Advisory Committee

The City Council established the Historic Resources Advisory Committee (HRAC) in 1980. In 1992, the HRAC attained National Park Service Certified Local Government (CLG) status, a program administered by the California OHP. The HRAC actively pursues historic preservation projects in the City, such as overseeing management of the City's Historic Resources Inventory, which is based on surveys initially conducted in 1976 and updated in 1996. The inventory has

since been updated using the Department of Parks and Recreation forms (DPR 523 form series). The HRAC also developed and oversees implementation of a Cultural Resources Management Plan that outlines the City’s policies for the treatment of historic resources impacted by development projects in the City. The Cultural Resources Management Plan is applied to all historic sites which have a potential for the on-site discovery, reconnaissance, and identification of a cultural resource.

4.5.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to cultural resources if it would:

- A. Cause a substantial adverse change in the significance of a historic resource as defined by CEQA Guidelines Section 15064.5;
- B. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5; or
- C. Disturb any human remains, including those interred outside of dedicated cemeteries.

4.5.4 Proposed Policies And Programs To Avoid Or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Cultural Resource impacts.

4.5.5 Impacts And Mitigation Measures

This section describes potential cultural resource impacts which could result from the implementation of the Project and recommends mitigation measures, as needed, to reduce significant impacts.

Historic Resources

Impact CUL-1 – Would the Project cause a substantial adverse change in the significance of a historic resource pursuant to Section 15064.5?

Analysis of Impacts

As described in Section 4.5.1, the Planning Area has a long-established history of settlement. The City contains many local resources, some of which are registered in the Local Official Register of Historic Resources.

Future development associated with implementation of the proposed Project could result in adverse impacts or removal of historic buildings or resources. However, current standards for development and policies within the General Plan support the preservation or rehabilitation/restoration of identified historic resources, and provide for the protection of such resources. Goal BE-37 establishes the intention to “protect, preserve, restore, rehabilitate,

and/or enhance historic resources” and the associated policies of the goal further detail the way in which the City plans to preserve the local cultural resources. Policy BE-37.1 states the aim of protecting historic resources throughout the City; this, in conjunction with Policies BE-37.2 and BE-37.3, represents a commitment to safeguarding the historic resources. Policy BE-37.1 and BE-37.2 respectively state, “preserve historic landmark structures, landscapes (including trees), trails and natural places, and sites that serve additional community needs, such as recreational open space and/or cultural needs” and “encourage the retention and/or adaptive reuse of historic residential, commercial, and industrial buildings” (see section 4.5.2, Regulatory Framework).

Additionally, as site-specific developments are proposed, individual projects within the Planning Area would be required to undergo project-specific environmental review. If project-level significant impacts to historic resources are identified, project-site specific mitigation would be applied as part of this separate environmental review to reduce potentially significant impacts related to historic resources, as required under CEQA.

With implementation of the adopted General Plan goals and policies, site-specific environmental review, as well as the existing preservation guidelines in the City’s Municipal Code, potential impacts to historic resources would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Archaeological Resources

Impact CUL-2 – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Analysis of Impacts

As stated above, there is potential for the discovery of unrecorded archaeological resources in portions of the City due to the long history of settlement and development of the area. Future housing development would entail site preparation, grading, and construction activities, which could adversely impact these previously undiscovered archaeological resources.

As stated in Impact CUL-1, the City has committed to efforts to preserve and maintain historically significant resources, specifically addressed in Policy BE-37.1: “Protect historic resources throughout the City.” These historic resources include those associated with archaeological findings. Any development occurring that would result in the discovery of potentially significant archaeological resources would be required to have appropriate investigative study completed by an expert to determine the significance of the resource as part of the existing Cultural Resources Management Plan.

Mitigation Measures CUL-2a, CUL-2b, and CUL-2c below would reduce potential impacts to undiscovered archaeological resources and would be applicable to all future development proposed under the Project.

Mitigation Measures:

Mitigation Measure CUL-2a: For future development of individual projects within the Planning Area, each applicant shall implement the following requirements: if deposits of prehistoric or historic archaeological materials are encountered during project construction activities, all work within an appropriate buffer area around the discovery shall be stopped and a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the deposit(s) and make recommendations to the City Community Development and Transportation Department regarding their treatment, consistent with CEQA Guidelines Section 15126.4 (b)(3).

If deposits of prehistoric or historic archaeological materials cannot be avoided by project activities, the City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist to evaluate the potential historic significance of the resource(s). If the deposits are deemed to be non-significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the qualified archaeologist, in coordination with the City Community Development and Transportation Department and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan.

The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological resource is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.

The City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist for the preparation and implementation of the data recovery plan, which shall be conducted by prior to any additional earth-moving activities in the area of the resource. The recovery plan shall be submitted to the project applicant, the City Community Development and Transportation Department, and the Northwest Information Center (NWIC) of the California Historical Resources Information System. Once the recovery plan is reviewed and approved by the City Community Development and Transportation Department and any appropriate resource recovery completed, project construction activity within the area of the find may resume. A data recovery plan shall not be required for resources that have been deemed by the NWIC as adequately recorded and recovered by studies already completed.

Mitigation Measure CUL-2b: Prior to the issuance of grading permits for future development within the Planning Area, the City Community Development and Transportation Department

shall confirm that any development applicant has required all construction crews to undergo adequate training for the identification of federal or state-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources within the specific project site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. To the extent that individual development projects may be found to have the potential to disturb or destroy archaeological resources, subsequent environmental documentation would be required, including mitigation measures to address any identified significant impacts.

Mitigation Measure CUL-2c: Future development project applicants must comply with the City’s Historic Resources Management Plan. Such projects shall prepare a cultural resources plan in compliance with the applicable California Environmental Quality Act regulations for all historic site or sites which have a potential for the on-site discovery, reconnaissance and identification of cultural resources. The cultural resources plan must include the following:

1. A records search conducted by the Northwest Information Center of the California Archaeological Inventory.
2. Interview of persons knowledgeable about the history of the site; as approved by staff and within a time period designated by staff; and
3. A review of maps archived at the local history room of the Main Library and other historical data contained in the Redwood City Inventory. (Responsibility: The Developer).”
4. With implementation of Mitigation Measures CUL-2a, CUL-2b, and CUL-2c, and the City’s established development review process, the Project’s potential impacts to archaeological resources would be less than significant.

Level of Significance After Mitigation

Less than Significant.

Human Remains

Impact CUL-3 – Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Analysis of Impacts

Native Americans have occupied the San Francisco Bay region for thousands of years, and the Planning Area has been developed by European settlers since the late 1800s. Therefore, it is possible that human remains could be discovered during excavation for development. The largely urbanized areas of the Planning Area may lessen the likelihood of discovery of human remains. Although not anticipated, human remains may be identified during site preparation and grading activities, resulting in a significant impact to Native American cultural resources. As stated in Impacts CUL-1 and CUL-2 the City has committed to efforts to preserve and maintain historically significant resources, specifically addressed in Policy BE-37.1: “Protect historic

resources throughout the City.” Historic resources would include informal burial sites and the associated human remains.

Mitigation Measures CUL-3a and CUL-3b, below, would reduce potential impacts to undiscovered human remains and would be applicable to all future development proposed under the Project such that potential impacts would be reduced to less than significant levels.

Mitigation Measures:

Mitigation Measure CUL-3a: For future development of individual projects within the Planning Area, if human remains are encountered during ground-disturbing activities within specific project sites, the project contractor and/or on-site supervisor shall provide certification to the City Community Development and Transportation Department that work within 50 feet of the discovery is stopped. The project contractor shall immediately notify the San Mateo County Coroner (Coroner) upon the discovery of any human remains. At the same time, a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted by the project applicant(s) and project contractor, in coordination with the City Community Development and Transportation Department, to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner shall notify the NAHC within 24 hours of this identification. The NAHC will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment or disposition, with proper dignity, of the remains and any associated grave goods. Upon completion of the assessment, the qualified archaeologist shall prepare a report documenting the background to the finds and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City Community Development and Transportation Department, and the NWIC. Once the report is reviewed and approved by the City Community Development and Transportation Department, and any appropriate treatment completed, project construction activity within the area of the find may resume. If the MLD does not make recommendations within 48 hours the project applicant(s) shall reinter the remains in an area of the property secure from further disturbance. If the project applicant(s) does not accept the MLD’s recommendations, the applicant(s) or the MLD may request mediation by the NAHC.

Mitigation Measure CUL-3b: Prior to the issuance of individual grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo a training session to inform them of the presence and nature of federal or state-eligible cultural resources and the potential for previously undiscovered archaeological resources and human remains within specific project sites, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.

With implementation of Mitigation Measures CUL-3a and CUL-3b, and the City’s established development review process, the Project’s potential impacts related to the disturbance of human remains by future development will be less than significant.

Level of Significance After Mitigation

Less than Significant.

4.5.6 REFERENCES

Redwood City Environmental Impact Report. 2010. A New General Plan for Redwood City, Draft Environmental Impact Report, 2010. [Accessed August 2022]

Redwood City General Plan: Historic Resources. 2010. Redwood City General Plan. Redwood City Historic Resources. [Accessed August 2022].

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4.6 Energy

This EIR section describes the existing environmental and regulatory energy setting, evaluates the Project's potential energy impacts, and identifies mitigation measures, if required.

4.6.1 Environmental Setting

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 277,704 gigawatt hours of electricity;¹
- Approximately 2,136,907 million cubic feet of natural gas per year (for the year 2018);² and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015).³

In 2019, energy use in California by demand sector was:

- Approximately 39.3 percent transportation;
- Approximately 23.2 percent industrial;
- Approximately 18.7 percent residential; and
- Approximately 18.9 percent commercial.⁴

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 72 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 9 percent) and the U.S. Southwest (approximately 19 percent). Natural gas is the main source for electricity generation at approximately 42.97 percent of the total in-state electric generation system power, as shown in Table 4.6-1.

¹California Energy Commission. Energy Almanac. Total Electric Generation. 2020.

<https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>.

²Natural Gas Consumption by End Use. U.S. Energy Information Administration. August 31, 2020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

³California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. April 19, 2018. <https://www.energy.ca.gov/assessments/>

⁴U.S. Energy Information Administration. California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates. January 16, 2020 <https://www.eia.gov/state/?sid=CA#tabs-2>

**Table 4.6-1:
Total Electricity System Power (California 2019)**

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	7,985	10.34%	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	8,921	11.55%	95,057	34.23%
Nuclear	16,163	8.06%	39	8,743	8,782	11.37%	24,945	8.98%
Oil	36	0.02%	0	0	0	0.00%	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	11	0.01%	422	0.15%
Large Hydroelectric	33,145	16.53%	6,387	1,071	7,458	9.66%	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	26.38%	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	23,696	30.68%	88,032	31.70%
<i>Biomass</i>	5,851	2.92%	903	33	936	1.21%	6,787	2.44%
<i>Geothermal</i>	10,943	5.46%	99	2,218	2,318	3.00%	13,260	4.77%
<i>Small Hydro</i>	5,349	2.67%	292	4	296	0.38%	5,646	2.03%
<i>Solar</i>	28,513	14.22%	282	5,295	5,577	7.22%	34,090	12.28%
<i>Wind</i>	13,680	6.82%	9,038	5,531	14,569	18.87%	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	77,229	100.00%	277,704	100.00%

Notes:

¹ Source: California Energy Commission. 2019 Total System electric Generation. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>

A summary of and context for energy consumption and energy demands within the State is presented in “U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts” excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation’s jet fuel consumption in 2018.
- California’s total energy consumption is the second-highest in the nation, but, in 2018, the State’s per capita energy consumption ranked the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.

- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation.⁵

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the Project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed Project.

Electricity and Natural Gas

Electricity and natural gas would be provided to the Project by Pacific Gas & Electric (PG&E). PG&E provides electrical and natural gas service to the Project area through State-regulated utility contracts. PG&E provides electric energy service to 16 million people throughout a 70,000-square-mile service area in northern and central California.⁶ The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. In 2020, PG&E provided 78,519 gigawatt-hours per year of electricity.⁷

Table 4.6-2 identifies PG&E's specific proportional shares of electricity sources in 2019. As shown in Table 4.6-2, the 2019 PG&E Power Mix for their Base Plan has renewable energy at 29 percent of the overall energy resources, of which biomass and waste is at 3 percent, solar energy is at 12 percent, and wind power is at 9 percent. Other energy sources include large hydroelectric at 27 percent and nuclear at 44 percent.

Natural gas is delivered through a nation-wide network of high-pressure transmission pipelines. In 2020, PG&E provided 4,509 million therms of natural gas.⁸

The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

California's natural gas utilities provide service to over 11 million gas meters. SoCalGas and PG&E provide service to about 5.9 million and 4.3 million customers, respectively, while SDG&E

⁵State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] <http://www.eia.gov/state/?sid=CA#tabs2>.

⁶ Pacific Gas & Electric. Company Profile. https://www.pge.com/en_US/about-pge/company-information/profile/profile.page.

⁷ California Energy Commission. Electricity Consumption by Entity. <http://www.ecdms.energy.ca.gov/elecbyutil.aspx>.

⁸ California Energy Commission. Gas Consumption by Entity. <http://www.ecdms.energy.ca.gov/gasbyutil.aspx>.

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provides service to over 800,000 customers. In 2018, California gas utilities forecasted that they would deliver about 4,740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65 percent of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35 percent.

The CPUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, California utility customers received 38 percent of their natural gas supply from basins located in the U.S. Southwest, 27 percent from Canada, 27 percent from the U.S. Rocky Mountain area, and 8 percent from production located in California."⁹

**Table 4.6-2:
PG&E 2019 Power Content Mix**

Energy Resources	2019 PG&E Power Mix
Eligible Renewable ¹	29%
<i>Biomass & Biowaste</i>	3%
<i>Geothermal</i>	2%
<i>Eligible Hydroelectric</i>	2%
<i>Solar</i>	12%
<i>Wind</i>	9%
Coal	0%
Large Hydroelectric	27%
Natural Gas	0%
Nuclear	44%
Other	0%
Unspecified Sources of power ²	0%
Total	100%

Notes:
Source: Pacific Gas & Electric. 2019 Power Mix. https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/1220-PowerContent-ADA.pdf
(1) The eligible renewable percentage above does not reflect Renewables Portfolio Standard (RPS) compliance, which is determined using a different methodology.
(2) Unspecified sources of power are not traceable to specific generation sources.

Transportation Energy Resources

The Project would generate vehicle trips resulting in consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-

⁹ California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

provided commodities and would be available to the Project residents and employees via commercial outlets.

The most recent data available shows the transportation sector emits 40 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NO_x).^{10,11} In 2019, 28 percent of total United States energy consumption was for transporting people and goods from one place to another. In 2019, petroleum comprised about 91 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.¹² In 2020, about 123.49 billion gallons (or about 2.94 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 337 million gallons (or about 8.03 million barrels) per day.¹³

4.6.2 Regulatory Framework

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation (U.S. DOT), the United States Department of Energy (U.S. DOE), and the United States Environmental Protection Agency (U.S. EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. EPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.¹⁴

Issued by NHTSA and U.S. EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO₂ standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO₂ standards for model year 2020 are 43.7 mpg and 204 grams of CO₂ per mile for

¹⁰ CARB. California Greenhouse Gas Emissions Inventory – 2020 Edition. <https://www.arb.ca.gov/cc/inventory/data/data.htm>

¹¹ CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

¹² US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

¹³ EIA. Frequently Asked Questions. <https://www.eia.gov/tools/faqs/faq.php?id=23&t=10>

¹⁴ National Highway Safety Administration (NHTSA). Corporate Average Fuel Economy. <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>.

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passenger cars and 31.3 mpg and 284 grams of CO₂ per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.¹⁵

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems to help improve operations and management of transportation systems and vehicle safety.

State

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The CEC prepares these assessments and associated policy recommendations every two years, with updates in alternate years.

The 2019 IEPR was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability,

¹⁵ National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule>.

climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.¹⁶

The 2020 IEPR was adopted March 23, 2021 and identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system. In 2020, the IEPR focuses on California's transportation future and the transition to zero-emission vehicles, examines microgrids, lessons learned from a decade of state-supported research, and stakeholder feedback on the potential of microgrids to contribute to a lean and resilient energy system. It also reports on California's energy demand outlook, updated to reflect the global pandemic and help plan for a growth in zero-emission plug in electric vehicles.¹⁷

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouraging urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6). The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations (CCR), Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to lighting and non-residential standards which include alignment with the American Society of Heating and Air-Conditioning Engineers.

All building permit applications submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient

¹⁶ California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>

¹⁷ California Energy Commission. Final 2020 Integrated Energy Policy Report. March 23, 2020. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update>

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buildings require less electricity; increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11). The 2019 California Green Building Standards Code (CCR Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention (Section 5.106.2); added Sections 5.106.4.1.3 and 5.106.4.1.5 regarding bicycle parking; amended Section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated Section 5.303.3.3 regarding showerhead flow rates; amended Section 5.304.1 for outdoor potable water use in landscape areas and repealed Sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 regarding MERV filters in mechanically ventilated buildings.

Senate Bill 100

Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350

Senate Bill 350 (SB 350), signed into law October 7, 2015, increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and that greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions, and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations to reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the U.S. EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO₂ and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the U.S. EPA announced that it denied the “waiver” request. On January 21, 2009, CARB submitted a letter to the U.S. EPA administrator regarding the State’s request to reconsider the waiver denial. The U.S. EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State’s GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 million tons per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California’s 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are “back-loaded,” with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today’s

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fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol, at ten percent by volume, and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20/Zero Emissions by 2035 Standard

Executive Order N-79-20 was issued in January 2021 and proposes a goal of the State that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035. Furthermore, it proposes a goal of the State that 100 percent of medium- and heavy-duty vehicles in the State be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks, as well as to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB's Advanced Clean Cars Program. Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.¹⁸

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

¹⁸ California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_x) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. As of 2018, the 2020 and 2035 targets were set at 15 percent and 19 percent, respectively. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

Local

Redwood City Community Climate Action Plan

The City's Climate Action Plan (CAP) provides tools and encouragement for residents and local businesses to coordinate with the City to reduce GHG emissions. The CAP was drafted in conjunction with the City's Climate Action Advisory Team and through extensive public outreach in the community. The CAP, which was acknowledged by the Redwood City Council in November 2020, includes a GHG emissions inventory from the year 2005 and sets forth a GHG reduction target for the year 2030 - a 50 percent decrease in GHG emissions from 2005 levels. To this end, the CAP includes a number of targeted reduction strategies.

Redwood City Green Building Ordinance

"Green building" is the practice of decreasing a building's demand for energy, water, and other materials and reducing a building's negative impacts on human health and on the local environment. According to the U.S. Green Building Council (USGBC), buildings annually consume more than 30 percent of the total energy and 60 percent of the electricity used in the

United States. The City adopted a Green Building Ordinance (GBO) in 2009 that establishes building construction guidelines relating to, among other things, sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Redwood City Reach Codes

Reach Codes are amendments to the Energy and Green Building Standards Codes to reduce energy usage and greenhouse gas emissions (GHGs). In September 2020, City Council approved the Reach Codes ordinance that mandates electrification and energy efficiency for all new construction projects. This requires all new housing to be all-electric. Reach Codes establish higher standards for new constructions to provide environmental and health benefits to the community. The Redwood City Reach Codes focuses on new residential, commercial, and multifamily buildings that will be seeking building permits after December 9, 2020. The ordinance does not apply to additions or alterations.

Commute Alternative Program

Redwood City sponsors a popular Transportation Demand Management (TDM) program, encouraging employees to commute to work using public transit, carpooling, or walking and biking. The TDM program is currently available only to municipal employees, but large employers in the City utilize their own similar programs. This program provides incentives and information to help employees commute to work using a mode other than a single-occupancy vehicle, and also encourages telecommuting when feasible so as to reduce transportation sector related GHG emissions. The program's major financial incentive is a limited number of vouchers available to employees to redeem for transit rides. These are called "commuter checks."

4.6.3 Significance Thresholds and Methodology

In compliance with Appendix G of the State CEQA Guidelines, the Project would result in a significant energy impact if it would:

- A. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- B. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Appendix F of the State CEQA guidelines states that the environmental impacts from a project can include:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Methodology

Information from the CalEEMod 2020.4.0 Daily and Annual Outputs, contained in Appendix D, was utilized for this analysis. The CalEEMod outputs detail Project related transportation energy demands and facility energy demands.

4.6.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Energy impacts.

4.6.5 Impacts and Mitigation Measures

This section describes potential energy impacts and recommends mitigation measures, as needed, to reduce significant impacts.

Energy Usage

Impact Energy-1 – Would the Project generate energy usage, either directly or indirectly, that may have a significant impact on the environment?

Analysis of Impacts

Energy consumption related to Project operations would include transportation energy demands and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of residents, employees and truck trips. The City of Redwood City is an urbanized area, and the Project would increase residential density in areas with existing transit stops.

Using the CalEEMod output (MD Acoustics 2022), it is assumed that an average trip for autos and light trucks was 9.5 miles and 3- and 4-axle trucks were assumed to travel an average of 6.69 miles.¹⁹ To be conservative, it was assumed that vehicles would operate 365 days per year. Table 4.6-3 shows the estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks for the Cumulative (2040) Plus Project scenario compared with the Cumulative (2040) scenario.²⁰ The proposed Project would generate approximately 678,090 trips per day, compared to 682,400 trips per day without the Project, per the traffic analysis from Fehr and Peers. This reduction occurs due to increased housing density near transit which allows for more walkable and transit-oriented communities. The vehicle fleet mix was used from the CalEEMod output for the Cumulative (2040) Plus Project scenario (MD Acoustics 2022). Table 4.6-3 shows that fuel consumption would be reduced by approximately 7.7 million gallons per year total and 18.1 percent per capita with the implementation of the Project.

**Table 4.6-3:
Estimated Vehicle Operations Fuel Consumption**

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles) ¹	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Cumulative (2040) Plus Project							
Light Auto	Automobile	287,206	16.6	4,767,619	46.25	103,075	37,622,534
Light Truck	Automobile	58,343	6.69	390,315	38.51	10,136	3,699,721
Light Truck	Automobile	179,377	6.69	1,200,029	38.53	31,142	11,366,882
Medium Truck	Automobile	117,365	6.69	785,169	32.08	24,475	8,933,362
Light Heavy Truck	2-Axle Truck	20,761	8.4	174,390	14.10	12,365	4,513,379
Light Heavy Truck 10,000 lbs +	2-Axle Truck	5,720	8.4	48,048	14.93	3,218	1,174,585
Medium Heavy Truck	3-Axle Truck	8,276	8.4	69,519	11.00	6,318	2,306,241
Heavy Heavy Truck	4-Axle Truck	1,043	8.4	8,762	7.72	1,136	414,460
Total		678,090	--	7,443,851	--	191,866	--
Total Annual Fuel Consumption							70,031,164
Service Population							257,210
Annual Fuel Consumption per Capita							272.3
Cumulative (2040)							
Light Auto	Automobile	401,306	16.6	6,661,681	46.25	144,025	52,569,072
Light Truck	Automobile	44,187	6.69	295,608	38.51	7,677	2,802,015
Light Truck	Automobile	124,550	6.69	833,238	38.53	21,623	7,892,570
Medium Truck	Automobile	82,502	6.69	551,937	32.08	17,205	6,279,734
Light Heavy Truck	2-Axle Truck	16,733	8.4	140,554	14.10	9,966	3,637,665
Light Heavy Truck 10,000 lbs +	2-Axle Truck	4,514	8.4	37,914	14.93	2,539	926,838
Medium Heavy Truck	3-Axle Truck	6,499	8.4	54,590	11.00	4,962	1,810,990
Heavy Heavy Truck	4-Axle Truck	4,483	8.4	37,657	7.72	4,880	1,781,182
Total		684,772	--	8,613,179	--	212,877	--
Total Annual Fuel Consumption							77,700,066
Change in Annual Fuel Consumption							-7,668,903
Service Population							233,590
Fuel Consumption per Capita							332.6

¹⁹ CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 9.5 miles; 7.3 miles for H-O (home-other) or C-O (commercial-other).

²⁰ Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for 2040. See Appendix D for EMFAC output.

**Table 4.6-3:
Estimated Vehicle Operations Fuel Consumption**

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles) ¹	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Percent Change Fuel Consumption per Capita							-18.1%
Notes:							
¹ Based on the size of the site and relative location, trips were assumed to be local rather than regional.							

Trip generation and VMT generated by the proposed Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption. Furthermore, the state of California consumed approximately 4.2 billion gallons of diesel and 15.1 billion gallons of gasoline in 2015.^{21,22} Therefore, as fuel consumption would be reduced from the implementation of the Project, fuel consumption would be insignificant in comparison to the State's demand. Therefore, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) from future projects associated with the Project would result in the consumption of electricity and natural gas (provided by PG&E). Operation of the proposed Project would involve the use of energy for heating, cooling and equipment operation. These facilities would comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output (MD Acoustics 2022) and are provided in Table 4.6-4. As shown, natural gas demand will be reduced by 9 percent per capita and electricity demand will be reduced by 3.8 percent per capita due to the increase in mixed use and multifamily housing which demands less energy per capita than single family housing of lesser density. The Project's 2040 growth projection would result in a reduction in energy usage per capita and would therefore have a **less than significant impact**.

**Table 4.6-4:
Unmitigated Annual Operation Energy Demand Summary**

Natural Gas Demand		kBTU/year
Cumulative (2040) Plus Project	Planning Area	1,239,045,000
	Per Capita	9,433
Cumulative (2040)	Planning Area	1,116,789,400
	Per Capita	10,366
Net Difference		122,255,600
Percent Change Per Capita		-9.0%

²¹California Energy Commission. California Gasoline Data, Facts, and Statistics. <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics>

²² California Energy Commission. Diesel Fuel Data, Facts, and Statistics. <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics>

**Table 4.6-4:
Unmitigated Annual Operation Energy Demand Summary**

Electricity Demand		kWh/year
Cumulative (2040) Plus Project	Planning Area	291,996,900
	Per Capita	2,223
Cumulative (2040)	Planning Area	248,937,300
	Per Capita	2,311
Net Difference		43,059,600
Percent Change Per Capita		-3.8%

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None Required.

Applicable Plan, Policy, or Regulation

Impact Energy-2 – Would the Project conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases?

Regarding federal transportation regulations, the City of Redwood City is located in an already developed area with existing roads. These roads are already in place so the Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because the City is not planning for intermodal facilities in the Planning Area.

Regarding the State’s Energy Plan and compliance with Title 24 CCR energy efficiency standards, all future projects within the Planning Area are required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances, as well as utility energy efficiency programs implemented by PG&E.

Regarding the State’s Renewable Energy Portfolio Standards, all projects within the Planning Area would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CALGreen Standards require that new buildings reduce water consumption, employ building commissioning design review to increase building system efficiencies, divert construction waste from landfills, use LED lighting, and install low pollutant-emitting finish materials. In addition, all future housing will be required to comply with the City’s REACH Codes, which require projects to be fully electric with limited exceptions. And all future projects would be required to show compliance with all federal, state, and local energy regulations.

Finally, Caltrain has proposed plans for 2040 which include increased ridership of over 275% from 2018 and electrification their fleet. The City is also in the process of creating its own Transit District

to be consistent with those plans and to encourage use of transit to curb energy usage and GHG emissions.

As described above, by requiring compliance with all relevant regulations for future developments within the Planning Area, the proposed Project would be consistent with all applicable plans, policies, and regulations and would have a **less than significant impact**.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None Required.

4.6.6 References

California Air Resources Board (CARB). (2016). 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA.

_____. (2017). California Air Resources Board, California's Advanced Clean Cars Program, January 18. www.arb.ca.gov/msprog/acc/acc.htm.

_____. (2020). California Greenhouse Gas Emissions Inventory – 2020 Edition. <https://www.arb.ca.gov/cc/inventory/data/data.htm>.

California Energy Commission. (2015). California Gasoline Data, Facts, and Statistics. <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics>

_____. (2015). Diesel Fuel Data, Facts, and Statistics. <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics>

_____. (2018). Revised Transportation Energy Demand Forecast 2018-2030. April 19. <https://www.energy.ca.gov/assessments/>.

_____. (2020). - Natural Gas Consumption by End Use. U.S. Energy Information Administration. August 31, 2020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

_____. (2020). Final 2019 Integrated Energy Policy Report. February 20. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>

_____. (2020). Final 2020 Integrated Energy Policy Report. March 23. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update>

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_____. (2020). Electricity Consumption by Entity. <http://www.ecdms.energy.ca.gov/elecbyutil.aspx>.

_____. (2020). Gas Consumption by Entity. <http://www.ecdms.energy.ca.gov/gasbyutil.aspx>.

_____. (2022). Energy Almanac. Total Electric Generation. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>.

California Public Utilities Commission (CPUC). (2021). Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA). (2018). Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule>.

National Highway Safety Administration (NHTSA). (2021). Corporate Average Fuel Economy. <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>.

Pacific Gas & Electric (PG&E). (2022). Company Profile. https://www.pge.com/en_US/about-pge/company-information/profile/profile.page.

U.S. Energy Information Administration (EIA). (2020). California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates. January 16. <https://www.eia.gov/state/?sid=CA#tabs-2>.

_____. (2022). US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. June 17. https://www.eia.gov/energyexplained/?page=us_energy_transportation.

_____. (2022). Frequently Asked Questions. March 15. <https://www.eia.gov/tools/faqs/faq.php?id=23&t=10>.

4.7 Geology and Soils

This EIR chapter provides information regarding geology and soils within the Planning Area, analyzes potential impacts associated with implementing the proposed Project, and identifies mitigation measures, as needed. Potential impacts on paleontological resources are also analyzed in this chapter.

4.7.1 Environmental Setting

Seismic Activity

The San Francisco Bay Area is known for earthquake faults and a high level of seismic activity. Although mapping completed under the Alquist-Priolo Earthquake Fault Zoning Act indicates that no active earthquake fault zones are located in the Planning Area, several major regional active fault zones are of concern. The San Andreas Fault zone—a significant tectonic feature—is located approximately 2,000 feet southwest of Redwood City. Other major regional active faults include the Hayward, Rodgers Creek, Calaveras, San Gregorio-Seal Cove, Maacama, West Napa, Green Valley, Concord, and Greenville faults. The active San Gregorio-Seal Cove Fault lies 9.5 miles to the west of Redwood City, and the inactive Pilarcitos fault is two miles to the west. Figure 4.7-1, shows where the active regional fault zones lie relative to the Planning Area.¹

It should be noted that multiple potentially active Quaternary-era faults that are part of the San Andreas Fault system cross the Planning Area. These faults show evidence of activity between 11,000 years and 1.6 million years ago. The faults are shown as concealed or buried and are not classified under the Alquist-Priolo Earthquake Fault Zone Act as active.

Ground Shaking

Ground shaking is the movement of the earth's surface in response to a seismic event and, in general, is the primary cause for the collapse of buildings/structures, injury, and loss of life from earthquakes. The intensity of the ground shaking is a function of the magnitude of the earthquake, distance from the fault, the characteristics of the surface and subsurface, geology, and the different types of buildings a community may contain. Because of the Planning Area's proximity to several previously-identified active faults, and because of the prevalent, motion-susceptible alluvial soils that underlie the community, the Planning Area is susceptible to earthquake-related ground shaking.

¹ Fault Zones. Association of Bay Area Governments Hazard Viewer. Web: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8> [Accessed July 2022]

Structural vulnerabilities in older buildings that are less earthquake resistant are most likely to contribute to the largest source of injury and economic loss as a result of an earthquake. This ground shaking could result in local seismic hazards such as landslides, liquefaction, settlement/expansive soils, subsidence, and soil erosion within the Planning Area. These hazards are discussed in detail below.

Liquefaction

Liquefaction is a common seismically induced hazard that occurs when water-laden, loose, and cohesionless soils are subject to intense seismic shaking and form a quicksand- or fluid-like soil condition below the ground surface. As a result, structural damage may occur as building foundations lose ground support and fail. Liquefaction typically occurs in areas where the groundwater is less than 30 feet from the surface and where the soils are composed of predominantly poorly consolidated fine sand. Soil liquefaction is a seismically induced form of ground failure, which has been a major cause of earthquake damage throughout California. The Association of Bay Area Governments (ABAG) Hazard Viewer has mapped moderate to very high liquefaction susceptibility in the tidal flat and coastline areas based on soil type. Most of the Planning Area is subject to liquefaction, as shown in Figure 4.7-2.²

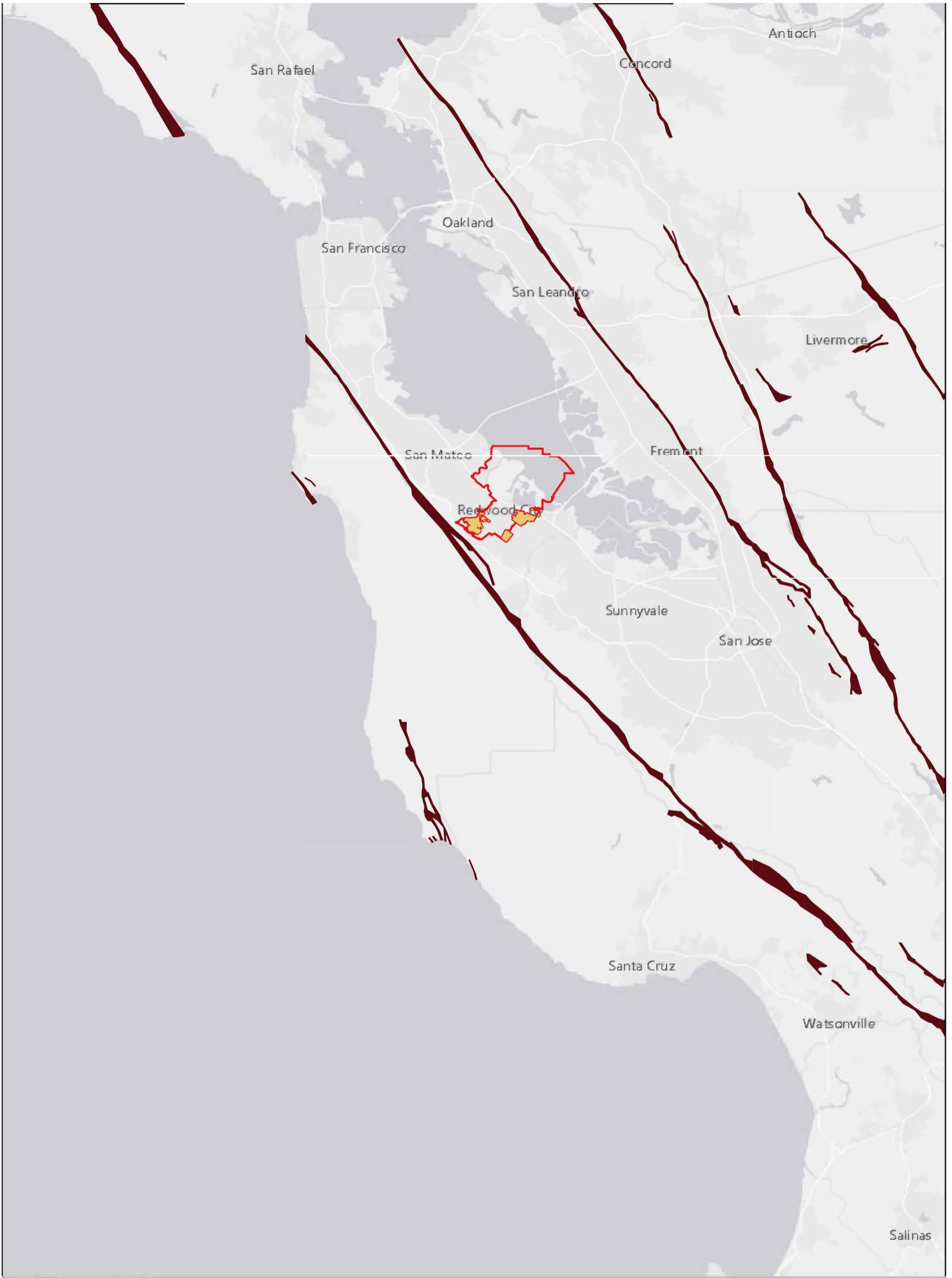
Landslides

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. Most of the Planning Area that is developed is relatively flat, and the ABAG Hazard Viewer maps areas of “few landslides” in the western portion of the Planning Area.

Settlement/Expansive Soils

Soils in the lowland portions of Planning Area are predominantly clays and silty clays with high shrink-swell potential. Clay and associated materials can result in weak, compressible, or expansive soils. Expansion and contraction in 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. These cycles can cause structural damage to buildings and infrastructure if the potentially expansive soils were not considered in project design and construction. Expansive soils can also be subject to subsidence, in which subsurface materials are dissolved by fluid flow, creating subsurface voids that can collapse.

² Liquefaction Zones. Association of Bay Area Governments Hazard Viewer. Web: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8> [Accessed July 2022]



Source: Esri, HERE, Garmin, USGS, EPA, NPS:

- Earthquake Fault Zones
- Redwood City Boundary
- Sphere of Influence

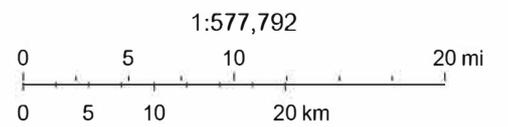


Figure 4.7-1: Active Faults

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Expansive soils tend to swell with soil moisture increase and shrink during soil moisture decrease. The volume changes that the soils undergo in this repetitive process can stress and damage slabs and foundations if precautionary measures are not taken. Differential settlement can result from expansive soils if a foundation is constructed on two materials having different settling/expansion characteristics, such as rock and soil. Portions of the Planning Area that contain loose or uncontrolled (non-engineered) fill may be susceptible to differential settlement. Locations in former tidal flats are expected to be susceptible to settlement due to low-strength native soils and potential unconsolidated fill. Additionally, former tidal flats are susceptible to differential settlement in areas where fill abuts native soil.

Subsidence

Subsidence is the lowering of the land surface caused by a variety of man-made and natural causes. Subsidence can occur in areas where subsurface materials, such as limestone rock or salt deposits, are dissolved by fluid flow creating subsurface voids that can collapse. Subsidence may be of concern where groundwater or natural gas is extracted, causing the soil grains to compact. In the Planning Area, the decomposition of highly organic soils and seasonal drying of expansive clay soils can result in subsidence, which can damage buildings. Organic and expansive soils in the Planning Area are subject to subsidence.

Soil Erosion

Erosion is a natural process that occurs over time and can be caused by either wind or water moving over soils. The natural erosion process is an important factor in building up fertile valley soils. However, soil erosion can become a problem when human activities accelerate the rate at which soils are removed, principally through storm water runoff and entrainment of sediment, such as via impervious surfaces, construction activities, and road construction (particularly unpaved roads), which can all accelerate soil erosion. Other human activities that can also affect erosion rates through increased storm water velocity include industrial wastewater discharges, mining activities, wastewater treatment plants, commercial and residential land uses, and agricultural operations. Soil erosion can leave silt-choked streams, gullied hillsides, and damaged farmland. For the Planning Area, erosion may be a concern especially during initial grading stages of future development under the proposed Project, as it can remove topsoil materials.

Increased erosion can affect stormwater quality. Stormwater runoff quality is regulated by the National Pollutant Discharge Elimination System (NPDES) program (established through the Federal Clean Water Act); the NPDES program objective is to control and reduce pollutants discharges to surface water bodies. In California, the NPDES program is administered by the State Water Resources Control Board, with local oversight provided by the Regional Water Quality Control Boards. Redwood City is a co-permittee under the San Mateo Countywide Water Pollution Prevention Program. See Chapter 4.10, Hydrology and Water Quality, for a discussion of the NPDES program.

Topography

The Planning Area is located within California's Coast Ranges Geomorphic Province, a geologically young and seismically active region. Northwest-southeast trending ranges of low mountains and intervening valleys dominate this region. The eastern portion of the Planning Area

is located in existing and former tidal marshes at sea-level. The central portion of the Planning Area is a gently sloping plain draining northeast to the tidal marsh, with elevations up to about 20 feet. The City's urban center with commercial and mixed uses is located in this central portion of the plan area. The southwestern portion forms the eastern foothills of the Santa Cruz Mountains and has elevations up to about 600 feet sloping northeast. Most of this portion of the Planning Area is developed as low density residences or as parks.

Paleontological Resources

Paleontological resources consist of the fossilized remains of plants and animals, including vertebrates (animals with backbones) and invertebrates (e.g., starfish, clams, ammonites, and marine coral). The age and abundance of fossils depends on the topography and geological formations of the region of interest. In general, most fossils in the Peninsula and San Francisco Regions are found along the immediate Pacific Ocean coastline, and in locations within the outcropping marine units in the Santa Cruz Mountains. The Planning Area does not include Pacific Ocean coastline, nor is it located in the Santa Cruz Mountains. Geologic units underlying the Planning Area are primarily composed of Holocene period alluvial fan deposits and Holocene period San Francisco Bay Muds. The Holocene Period dates from approximately 10,000 to 12,000 years prior to the present and is the era in which human civilization is generally considered to have begun.

4.7.2 Regulatory Framework

Federal

Federal Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 authorizes the Federal Emergency Management Agency (FEMA) to set mitigation planning requirements for state, local, and Indian Tribal governments as a condition of mitigation grant and disaster assistance, and requires close coordination of mitigation planning and implementation efforts between FEMA and jurisdictions.

Code of Federal Regulations (CFR) Title 43 CFR 8365.1-5

This regulation addresses the collection of invertebrate fossils and fossil plants, including the willful disturbance, removal, and destruction of scientific resources or natural objects.

National Earthquake Hazards Reduction Program

Established by Congress in 1977, the National Earthquake Hazards Reduction Program (NEHRP) leads the federal government's efforts to reduce the fatalities, injuries, and property losses caused by earthquakes. 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.

In its initial NEHRP authorization, and in subsequent reauthorizations, Congress has recognized that several key federal agencies can contribute to earthquake mitigation efforts.

Federal Antiquities Act of 1906

The Federal Antiquities Act protects paleontological resources on federal lands under Subsection 8.16.2.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the potential hazard of surface faults to structures for human occupancy. The main purpose of the Act is to prevent the construction of human-occupied buildings over active faults. The Act only addresses the hazard of fault rupture and is not directed toward other earthquake hazards.

The Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue maps to all affected cities, counties, and State agencies for their use in planning and controlling development. Local agencies must regulate most development projects within the zones, and generally there can be no construction for human occupancy within 50 feet of an active fault zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, which was passed by the California legislature in 1990, addresses earthquake hazards related to liquefaction and seismically induced landslides. Under this Act, seismic hazard zones are mapped by the State Geologist to assist local governments in land use planning. Section 2697(a) of the Act states that “cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard.” Two exceptions to this are allowed related to certain single-family residential dwellings, and alterations or additions to any structure within a seismic hazard zone that do not exceed 50 percent of the structure’s value or 50 percent of the floor area of the existing structure (Section 2693).

California Building Standards Code

The California Building Standards Code (CBSC) is contained in the California Code of Regulations (CCR), Title 24, and includes requirements for residential construction (California Residential Code) and non-residential construction (California Building Code), plumbing and electrical standards (California Plumbing Code and California Electrical Code, respectively), and related regulations. The purpose of the CBSC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability, by controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of building and structures. The CBSC contains specific requirements for seismic safety, excavation, foundations, retaining walls, and site demolition. It

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also regulates grading activities, including drainage and erosion control. The 2019 California Building Code is based on the 2018 International Building Code (IBC) published by the International Code Council.

California Public Resources Code Section 5097

Public Resources Code Section 5097 prohibits willfully damaging any historical, archaeological, or vertebrate paleontological site or feature on public lands.

Regional

Association of Bay Area Governments (ABAG) Multi-Jurisdictional Local Hazard Mitigation Plan

The ABAG Multi-Jurisdictional Local Hazard Mitigation Plan (“Taming Natural Disasters”) involves local agencies throughout its nine-county Bay Area jurisdiction, with an overall strategy to maintain and enhance disaster response of the region. The plan focuses on mitigation *before* rather than after disasters by: (1) identifying natural hazards faced by the community and region (e.g., earthquakes, flooding, severe weather), (2) assessing the community’s and region’s vulnerability to these hazards, and (3) identifying specific preventive actions that can be taken to reduce the risk from the hazards. The plan, which has been approved by FEMA and adopted by ABAG, fulfills the requirements of the Federal Disaster Mitigation Act of 2000.

Local

Multijurisdictional Local Hazard Mitigation Plan

San Mateo County’s Multijurisdictional Local Hazard Mitigation Plan (LHMP), which was last updated in 2021 and is currently in the process of being updated, assesses hazard vulnerabilities, and identifies mitigation actions that local jurisdictions will pursue to reduce the level of injury, property damage, and community disruption that might otherwise result from such event. The LHMP addresses natural and human-caused hazards, including flooding, drought, wildfire, landslides, severe weather, terrorism, cyber threats, pandemic, and the impact of climate change on hazards, as well as other hazards.

Redwood City General Plan

The adopted General Plan Public Safety Element addresses hazards due to earthquake activity (including emergency response) and related geologic conditions. Applicable adopted General Plan goals and policies include:

Goal PS-6 Minimize the potential damage to structures and loss of life that result from earthquakes and other geological hazards.

Policy PS-6.1: Identify structural types, land uses, and sites that are highly sensitive to earthquake activity and other geological hazards and abate or modify them to achieve acceptable levels of risk.

Policy PS-6.2: Inform the public through schools, community centers, and other agencies and media channels what can be done to reduce risks from seismic events to persons and property.

Policy PS-6.3: Work to ensure that structures and the public in Redwood City are exposed to reduced risks from seismic and geological events

GOAL PS-9 Maintain the ability of the Redwood City community to respond promptly, efficiently, and effectively in the event of a major earthquake or other natural or human-caused disaster.

Policy PS-9.1: Promote improved inter-jurisdictional cooperation and communication regarding disaster or emergency plans of San Mateo County, and for seismic safety upgrades of public facilities and infrastructure such as dams, reservoirs, bay front levees, and highway structures.

Policy PS-9.2: Identify alternative water sources for fire-fighting use during a disaster.

Policy PS-9.3: Conduct ongoing public outreach regarding procedures and plans to be followed in the event of an emergency.

Redwood City Building Code

The City has adopted the 2019 California Building Code, with local amendments, to address design and construction in seismically active areas as well as site soil conditions, including expansive soils conditions or other soil problems which, if not corrected, could lead to structural defects (e.g., soil corrosivity), are considered in the planning process. Compliance with the Building Code is enforced by the City’s Building Inspection Division.

4.7.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to geology and soils if it would:

- A. 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; or
 - 4. Landslides;
- B. Result in substantial soil erosion or the loss of topsoil;

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- C. 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- D. 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; or
- E. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
- F. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

4.7.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Geology and Soils impacts.

4.7.5 Impacts and Mitigation Measures

This section describes potential impacts which could result from the implementation of the Project and recommends mitigation measures, as needed, to reduce significant impacts.

Faults, Liquefaction, and Seismic-Related Ground Failure

Impact GEO-1 –Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) 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; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; or iv) landslides.

Analysis of Impacts

- I. The Redwood City segment of the active Elsinore Fault is located along the western portion of the City near its boundary with the Sphere of Influence along the foot of the Emerald Hills. The proximity of its existence creates the potential for earthquakes in the Planning Area which can cause the loss of life or adversely impact developments.
- II. The Planning Area has experienced moderate to severe ground shaking in the past from regional earthquakes. Earthquakes are expected to occur again in the future given the seismic nature of the region, in effect creating further potential impacts to developments related to ground shaking; similar to the effects caused by the potential rupture of a known fault, ground shaking has the potential to create a risk of loss, injury or death.
- III. There are liquefaction zones in the City associated with proximity to the San Francisco Bay and the soil associated with the area. Due to the presence of local and regional faults,

shrinking and expanding soils, and proximity to the coastline, portions of the City may experience liquefaction during strong seismic events, making future developments vulnerable to the possibility of liquefaction as well as creating potential risk to residents.

- IV. Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. Most of the Planning Area that is developed is relatively flat, and the ABAG Hazard Viewer maps areas of “few landslides” in the western, hillier portion of the Planning Area. This means that the potential for landslides exists within the Planning Area and these events as mentioned in the above sections have the potential to lead to loss of life and destabilize developments.

As noted in points I-IV, new developments proposed under the Project are located in or near areas known to be subject to faults, liquefaction, and seismic ground-shaking, and landslides. However, new development would be required to comply with Title 24 Part Two of the California Building Code, which includes the standards set for safety in regard to soil disturbance and geologic events. These standards require all new developments to be designed consistently with a site specific, design level geotechnical report, which would be fully compliant with the seismic recommendations of a California-registered professional geotechnical engineer. These recommendations would be designed to adequately prepare for the foreseeable geologic and soils disturbances mentioned above. Furthermore, the City has implemented development standards that further mitigate potential impacts related to soil and geological phenomenon, namely: earthquake related events, seismic ground shaking, liquefaction, and landslides that have the potential to create risk of loss, injury or death. The relevant policies in the Public Safety Element update are:

Policy PS-6.1: Identify structural types, land uses, and sites that are highly sensitive to earthquake activity and other geological hazards and seek to abate or modify them to achieve acceptable levels of risk.

Policy PS-6.3: Work to ensure that structures and the public in Redwood City are exposed to reduced risks from seismic and geological events.

With implementation of the policies of the updated Safety Element, and maintaining consistency with the State Building Code and the current guidelines for development in the municipal code, potential impacts related to geologic and seismic constraints on future development within the Planning Area would be less than significant.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

Soil Erosion

Impact GEO-2 – Would the Project result in substantial soil erosion or the loss of topsoil?

Analysis of Impacts

The proposed Project and the future development associated with it do not pose any threat to soil erosion or the loss of topsoil beyond what would normally be expected to occur with any typical potential development. Any future development must meet the requirements of the National Pollution Discharge Elimination System (NPDES) through preparation of a Storm Water Pollution Prevention Plan (SWPPP) for short-term construction related water quality impacts and implementation of Best Management Practices (BMPs) with a monitoring program.

An SWPPP would contain the following elements:

- A. Cover/title page
- B. Project and SWPPP contact information
- C. Site and activity description, including a site map
- D. Identification of potential pollutant sources
- E. Description of controls to reduce pollutants
- F. Maintenance/inspection procedures
- G. Records of inspections and follow-up maintenance of BMPs
- H. SWPPP amendments
- I. SWPPP certification

Likewise, any development would follow the standards for building already in place in the City.

Municipal Code Chapter 30. Article V. Section 30.90.- Grading, Erosion and Sedimentation Control Plans, states:

Plans and other documents required under Section 30.86B shall include precise grading plans and specifications. Where, in the opinion of the Director of Public Works, the site possesses a high soil erosion potential, the plans and specifications shall also show erosion control measures to be undertaken.

Such plans and specifications for erosion control shall include one or more of the following measures to prevent soil erosion and to prevent sedimentation or damage to adjacent property:

- A. *Special slope grading.*
- B. *Installation of retaining walls, under drains and similar structures.*
- C. *Special facilities for collection, conductance, retention, or diversion of surface waters.*
- D. *Preservation and enhancement of vegetative cover on undisturbed existing slopes.*
- E. *Planting graded slopes with suitable vegetative cover.*

With implementation of adopted and updated Public Safety Element policies, water quality regulatory permitting requirements, and guidelines for erosion control in the municipal code, impacts related to erosion from future development within the Planning Area would be less than significant.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

Slope Stability and Landslides

Impact GEO-3 – Would the Project 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 on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Analysis of Impacts

The Planning Area contains a number of identified geologic, seismic, and soil constraints. The Redwood City segment of an active Alquist-Priolo Earthquake Fault is located along the western portion of the City near its boundary with the Sphere of Influence near the Emerald Hills. The Planning Area has experienced moderate to severe ground shaking in the past from regional earthquakes, making it conceivable that possible future events could occur and trigger landslides. In addition to landslides, the Planning Area is susceptible to lateral spreading because shaking due to earthquakes can lead to liquefaction of saturated soil, which in turn can result in lateral spreading where the soil undergoes a temporary loss of strength. The close proximity of the Planning Area to San Francisco Bay and the presence of expanding and shrinking soils in the City make the potential for adverse impacts to future developments due to liquefaction possible, and both landslides and lateral spreading can be associated with the potential for liquefaction.

Liquefaction risks have been mapped by the Association of Bay Area Governments (ABAG) Hazard Viewer,³ which indicates moderate to very high liquefaction susceptibility in the tidal flat and coastline areas of the Planning Area based on soil type. Much of the Planning Area is subject to liquefaction, due to the proximity of the City to the bay. As discussed above this proximity creates the possibility for liquefaction that could adversely affect future developments in the Planning Area.

Due to the presence of local and regional faults, sandy soils, and shallow groundwater, portions of the Planning Area may experience subsidence, lateral spreading, or collapse during strong seismic events, in addition to the potential for liquefaction or landslides. These seismic-related conditions could affect structures and their occupants of future development under the Project.

³ Liquefaction Zones. Association of Bay Area Governments Hazard Viewer. Web: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8> [Accessed July 2022]

4.7 – Geology and Soils

However, the State Building Code (SBC) includes standards for building design and construction based on seismic constraints and expected ground-shaking throughout California. Part Two of Title 24 of the SBC includes specific performance standards for safety in regard to soil disturbance and geologic events. During the City’s mandatory development review process, proposed private projects are evaluated against the seismic design standards of the SBC. Furthermore, as mentioned above, the Project contains Policies PS-6.1 and PS-6.3, which address identifying and reducing the risk of geologic and seismic events.

With implementation of Public Safety Element policies and the State Building Code, potential impacts related to seismically induced constraints on future development within the Planning Area would be reduced to less than significant.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

Settlement of Soil

Impact GEO-4 – Would the Project 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?

Analysis of Impacts

The Planning Area contains a number of soil types including those characterized as deep clays and silty clays. In areas where soils have a high clay content, the potential exists for expansion when the soil becomes saturated with water. This type of soil constraint could affect structures and their occupants of future development under the Project.

The updated Safety Element would address soil specific conditions and includes Policies PS-6.1 and PS-6.3 which state, respectively, “identify structural types, land uses, and sites that are highly sensitive to earthquake activity and other geological hazards and seek to abate or modify them to achieve acceptable levels of risk,” and “work to ensure that structures and the public in Redwood City are exposed to reduced risks from seismic and geological events.” Program PS-23 requires environmental documents prepared in connection with CEQA to address seismic safety issues and provide adequate mitigation for existing and potential hazards. Additionally, Program PS-24 requires a geotechnical analysis for construction in areas with potential geological hazards and to implement appropriate mitigation recommendations.

In addition to the Redwood City General Plan policies and programs described above, the State Building Code (SBC) has mandates on building design and construction based on soil conditions and limitations in California. During the City’s development review process, proposed site-specific projects are evaluated with regards to the soil design constraints of the SBC.

With implementation of this General Plan goal and policies and the State Building Code, potential impacts related to soil constraints, including expansive soils, would be less than significant.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

Soil Drainage

Impact GEO-5 – Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Analysis of Impacts

All or most development associated with the Project would generate wastewater. As previously indicated, the Planning Area contains a number of soil constraints. The land within the City limits is generally characterized as clays and silty clays. However, the entire Planning Area is served by the sewage system infrastructure; there are no septic systems in the Planning Area.

During the City’s existing development review process, proposed private projects are evaluated against the soil design constraints of the SBC. The City then requires this evaluation in a site-specific soil constraints or geotechnical constraints report signed by a registered engineer or geologist.

The Planning Area is largely urbanized, and the potential housing sites are located where sewage infrastructure is already available. The entire Planning Area is serviced by the Redwood City sewage system infrastructure. Potential impacts related to soil constraints would be less than significant due to the Planning Area being fully serviced by the existing sewage infrastructure.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

Paleontological Resources

Impact GEO-6 – Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Analysis of Impacts

As indicated in the Environmental Setting section “Paleontological Resources,” the Planning Area is not known to have paleontological resources but could potentially have resources that date back hundreds of thousands of years. In general, most fossils in the Peninsula and San Francisco Regions are found along the immediate Pacific Ocean coastline, and in locations within the outcropping marine units in the Santa Cruz Mountains. The Planning Area does not include Pacific Ocean coastline, nor is it located in the Santa Cruz Mountains. The Planning Area may contain isolated geologic features in some of the steeper, less accessible areas. This would be especially important for proposed development on previously undisturbed land that contains steep slopes, rocky outcroppings, or unique geological features.

The City’s Cultural Resources Management Plan requires development proposals to obtain a records search at the Northwest Information Center of the California Archaeological Inventory; interview of persons knowledgeable about the history of the site, as approved by City staff and within a time period designated by staff; and a review of maps archived at the local history room of the Main Library.

As a standard condition of approval on all ground disturbing activities in the City’s jurisdiction, the City Community Development and Transportation Department requires work stoppage in the event paleontological resources are identified.

Prior to the issuance of grading or demolition permits, the City Community Development and Transportation Department, in coordination with a qualified paleontologist, assesses individual development project proposals for the potential to destroy unique paleontological resources. The Department requires development proposals entailing significant earthworks or deep foundations with the potential to penetrate sedimentary rock layers to incorporate a study by a professional paleontologist to assess the potential for damage of paleontological resources.

Should the paleontologist determine that the proposal has the potential to damage resources, the paleontologist shall provide detailed provisions for the protection of these resources to the City Community Development and Transportation Department. With continued implementation of the City’s established processes under the Cultural Resources Management Plan regarding potential paleontological resources or unique geologic resources, the potential impacts related to paleontological resources and future development within the Planning Area would be less than significant.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

4.7.6 References

Fault Zones. Association of Bay Area Governments Hazard Viewer. Web: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8> [Accessed July 2022]

Liquefaction Zones. Association of Bay Area Governments Hazard Viewer. Web: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8> [Accessed July 2022]

Redwood City General Plan. Redwood City General Plan Public Safety Element. [Accessed July 2022]

California Building Standards Code. 2022 Triennial Edition of Title 24. Web: <https://www.dgs.ca.gov/BSC/Codes>. [Accessed August 2022]

Community Development Services Department. Redwood City Cultural Resources Management Plan. Web: <https://www.redwoodcity.org/home/showpublisheddocument/2006/635731673646030000> [Accessed September 2022]

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4.8 Greenhouse Gases

This EIR chapter describes the existing environmental and regulatory greenhouse gas (GHG) setting of the Planning Area and evaluates the Project's potential GHG emissions impacts. Information on existing GHG emissions levels and applicable Federal and State regulations was obtained from the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD).

4.8.1 Environmental Setting

Climate Change

Climate change is the distinct change in measures of climate over a long period of time. Climate change can result from natural processes and from human activities. Natural changes in the climate can be caused by indirect processes, such as changes in the Earth's orbit around the Sun, or direct changes within the climate system itself (i.e., changes in ocean circulation). Human activities can affect the atmosphere through emissions of gases and changes to the planet's surface. Emissions affect the atmosphere directly by changing its chemical composition, while changes to the land surface indirectly affect the atmosphere by changing the way the Earth absorbs gases from the atmosphere. The term "climate change" is preferred over the term "global warming" because "climate change" conveys the fact that other changes can occur beyond just average increase in temperatures near the Earth's surface. Elements that indicate that climate change is occurring on Earth include:

- Rising of global surface temperatures by 1.3° Fahrenheit (°F) over the last 100 years;
- Changes in precipitation patterns;
- Melting ice in the Arctic;
- Melting glaciers throughout the world;
- Rising ocean temperatures;
- Acidification of oceans; and
- Range shifts in plant and animal species.

Climate change is intimately tied to the Earth's greenhouse effect. The greenhouse effect is a natural occurrence that helps regulate the temperature of the planet, and without it, life as we know it on Earth would not exist. Since the beginning of the industrial revolution (approximately 150 years), human activities have been adding to the natural greenhouse effect by increasing the gases in the atmosphere that "trap" energy, thereby contributing to an average increase in the Earth's temperature. Human activities that enhance the greenhouse effect are detailed below.

Greenhouse Gases

Gases that “trap” heat in the atmosphere and affect regulation of the Earth’s temperature are known as “greenhouse gases.” Many chemical compounds in the Earth’s atmosphere exhibit the GHG property. GHGs allow sunlight to enter the atmosphere freely. When the sunlight strikes the Earth’s surface, it is either absorbed or reflected back toward space. Earth, or materials near the Earth’s surface, that have absorbed energy from sunlight warm up during the daytime and emit infrared radiation back toward space during both the daytime and nighttime hours. GHGs absorb this long-wave, infrared radiation and help keep the energy in the Earth’s atmosphere.

GHGs that contribute to climate regulation are a different type of pollutant than criteria or hazardous air pollutants because climate regulation is global in scale, both in terms of causes and effects. Some GHGs are emitted to the atmosphere naturally by biological and geological processes such as evaporation (water vapor), aerobic respiration (carbon dioxide, or CO₂), and off-gassing from low-oxygen environments such as swamps or exposed permafrost (methane or CH₄). However, GHG emissions from human activities such as fuel combustion (e.g., CO₂) and refrigerant use (e.g., hydrofluorocarbons, or HFCs) significantly contribute to overall GHG concentrations in the atmosphere, climate regulation, and global climate change. Human production of GHGs has increased steadily since pre-industrial times (approximately pre-1880), and atmospheric CO₂ concentrations have increased from a pre-industrial value of 280 parts per million (ppm) in the early 1800s to approximately 419 ppm in April 2021 (NOAA, 2021). The effects of increased GHG concentrations in the atmosphere include increasing shifts in temperature and precipitation patterns and amounts, reduced ice and snow cover, sea level rise, and acidification of oceans. These effects in turn impact food and water supplies, infrastructure, ecosystems, and overall public health and welfare.

The 1997 United Nations’ Kyoto Protocol international treaty set targets for reductions in emissions of four specific GHGs—CO₂, CH₄, nitrous oxide (N₂O), and sulfur hexafluoride (SF₆)—and two groups of gases—HFCs and perfluorocarbons (PFCs). These GHGs are the primary GHGs emitted into the atmosphere by human activities. Water vapor is also a common GHG that regulates the Earth’s temperature; however, the amount of water vapor in the atmosphere can change substantially from day to day, whereas other GHG emissions remain in the atmosphere for longer periods of time. Black carbon consists of particles emitted during combustion; although a particle and not a gas, black carbon also acts to trap heat in the Earth’s atmosphere. The most common GHGs are described below.

- **Carbon Dioxide (CO₂)** is emitted and removed from the atmosphere naturally. Animal and plant respiration involves the release of CO₂ from animals and its absorption by plants in a continuous cycle. The ocean-atmosphere exchange results in the absorption and release of CO₂ at the sea surface. CO₂ is also released from plants during wildfires. Volcanic eruptions release a small amount of CO₂ from the Earth’s crust. Human activities that affect CO₂ in the atmosphere include burning of fossil fuels, industrial processes, and product uses. Combustion of fossil fuels used for electricity generation and transportation are the largest source of CO₂ emissions in the United States. When fossil fuels are burned, the carbon stored in them is released into the atmosphere entirely as CO₂. Emissions from industrial activities also emit CO₂ such as cement, metal, and chemical production and use of petroleum produced in plastics, solvents, and lubricants.

- **Methane (CH₄)** is emitted from human activities and natural sources. Natural sources of CH₄ include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, soils, and wildfires. Human activities that cause CH₄ releases include fossil fuel production, animal digestive processes from farms, manure management, and waste management. It is estimated that 50 percent of global CH₄ emissions are human generated. Releases from animal digestive processes at agricultural operations are the primary source of human-related CH₄ emissions. CH₄ is produced from landfills as solid waste decomposes. CH₄ is a primary component of natural gas and is emitted during its production, processing, storage, transmission, distribution, and use. Decomposition of organic material in manure stocks or in liquid manure management systems also releases CH₄. Wetlands are the primary natural producers of CH₄ because the habitat is conducive to bacteria that produce CH₄ during decomposition of organic material.
- **Nitrous Oxide (N₂O)** is emitted from human sources such as agricultural soil management, animal manure management, sewage treatment, combustion of fossil fuels, and production of certain acids. N₂O is produced naturally in soil and water, especially in wet, tropical forests. The primary human-related source of N₂O is agricultural soil management due to use of synthetic nitrogen fertilizers and other techniques to boost nitrogen in soils. Combustion of fossil fuels (mobile and stationary) is the second leading source of N₂O, although parts of the world where catalytic converters are used (such as California) have significantly lower levels than those areas that do not.
- **Sulfur Hexafluoride (SF₆)** is commonly used as an electrical insulator in high-voltage electrical transmission and distribution equipment such as circuit breakers, substations, and transmission switchgear. Releases of SF₆ occur during maintenance and servicing as well as from leaks of electrical equipment.
- **Hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs)** are entirely human made and are mainly generated through various industrial processes. These types of gases are used in aluminum production, semiconductor manufacturing, and magnesium production and processing. HFCs and PFCs are also used as substitutes for ozone-depleting gases like chlorofluorocarbons (CFCs) and halons.

In 1997, the United States (U.S.) was a signatory to the Kyoto Protocol; however, the treaty was not sent to Congress for ratification. Thus, while a signatory to the Kyoto Protocol, the U.S. is not an official party to this international agreement and is not subject to any emission reductions goals established pursuant to the Kyoto Protocol. Although the U.S. is not a party to this agreement, the GHGs targeted for reduction by the Kyoto Protocol are also targeted under federal and State GHG reporting and emissions reduction programs.

GHGs can remain in the atmosphere long after they are emitted. The potential for a particular greenhouse gas to absorb and trap heat in the atmosphere is considered its global warming potential (GWP). The reference gas for measuring GWP is CO₂, which has a GWP of one. By comparison, CH₄ has a GWP of 25, which means that one molecule of CH₄ has 25 times the effect on global warming as one molecule of CO₂. Multiplying the estimated emissions for non-CO₂ GHGs by their GWP determines their CO₂ equivalent (CO₂e), which enables a project's combined GWP to be expressed in terms of mass CO₂ emissions. The GWP and estimated atmospheric lifetimes of the common GHGs are shown in Table 4.8-1.

**Table 4.8-1:
Global Warming Potential (GWP) of Common GHGs (100-Year Horizon)**

GHG	GWP ^(A)	GHG	GWP ^(A)
Carbon Dioxide (CO ₂)	1	Perfluorocarbons (PFCs)	
Methane (CH ₄)	25	CF ₄	6,500
Nitrous Oxide (N ₂ O)	298	C ₂ F ₆	9,200
Hydrofluorocarbons (HFCs)		C ₄ F ₁₀	7,000
HFC-23	14,800	C ₆ F ₁₄	7,400
HFC-134a	1,430	Sulfur Hexafluoride (SF ₆)	22,800
HFC-152a	140		
HCFC-22	1,700		
Source: CARB, 2014 (A) GWPs are based on the United Nations Intergovernmental Panel on Climate Change (IPCC) 4 th Assessment Report.			

Climate Change and California

The 2009 California Climate Adaptation Strategy prepared by the California Natural Resources Agency (CNRA) identified anticipated impacts to California due to climate change through extensive modeling efforts. General climate changes in California indicate that:

- California is likely to get hotter and drier as climate change occurs with a reduction in winter snow, particularly in the Sierra Nevada Mountain Range.
- Some reduction in precipitation is likely by the middle of the century.
- Sea levels will rise up to an estimated 55 inches.
- Extreme events such as heat waves, wildfires, droughts, and floods will increase.
- Ecological shifts of habitat and animals are already occurring and will continue to occur (CNRA, 2009).

It should be noted that changes are based on the results of several models prepared under different climatic scenarios; therefore, discrepancies occur between the projections and the interpretation. The potential impacts of global climate change in California are detailed below.

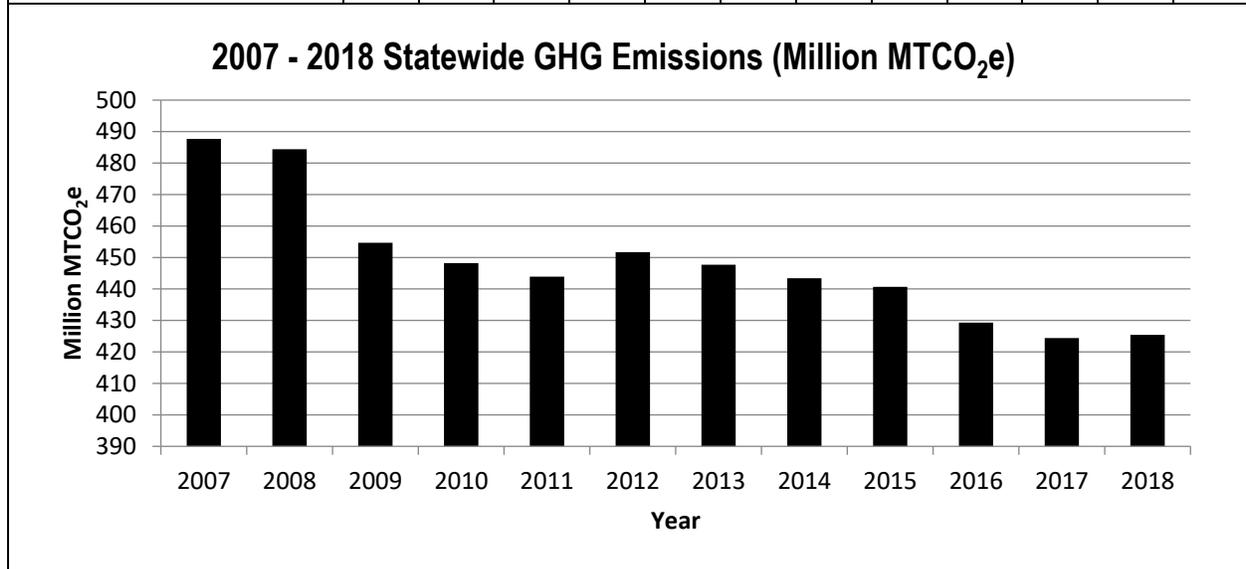
In January 2018, the CNRA adopted *Safeguarding California Plan: 2018 Update*, which builds on nearly a decade of adaptation strategies to communicate current and needed actions the State government should take to build climate change resiliency. It identifies hundreds of ongoing actions and next steps that State agencies are taking to safeguard Californians from climate impacts within a framework of 81 policy principles and recommendations. The 2018 update also has two new chapters and incorporates a feature showcasing the many linkages among policy areas. A new “Climate Justice” chapter highlights how equity is woven throughout the entire plan (CNRA, 2018).

Statewide GHG Emissions

CARB prepares an annual statewide GHG emission inventory using regional, State, and federal data sources, including facility-specific emissions reports prepared pursuant to the State’s Mandatory GHG Reporting Program. The statewide GHG emission inventory helps CARB track progress towards meeting the State’s Assembly Bill (AB) 32 GHG emissions target of 431 million metric tons of CO₂ equivalents (MTCO_{2e}), as well as establish and understand trends in GHG emissions.¹ Statewide GHG emissions for the 2007 to 2018 time period are shown in Table 4.8-2 (2007-2018 Statewide GHG Emissions (Million MTCO_{2e})).

**Table 4.8-2:
2007-2018 Statewide GHG Emissions (Million MTCO_{2e})**

Scoping Plan Sector	Year											
	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Agriculture	35	35	33	34	34	36	34	35	33	33	32	33
Commercial/Residential	44	44	45	46	46	44	44	38	39	41	41	41
Electric Power	114	120	101	90	89	98	91	89	85	69	62	63
High GWP	11	12	12	14	15	16	17	18	19	19	20	21
Industrial	90	90	87	91	89	89	92	92	90	89	89	89
Recycling and Waste	8	8	9	9	9	9	9	9	9	9	9	9
Transportation	186	175	168	165	162	161	161	163	166	170	171	170
Total Million MTCO_{2e}(A)	488	484	455	448	444	452	448	443	441	429	424	425



Source: CARB, 2020

(A) Totals may not equal due to rounding. CARB inventory uses GWPs based on the United Nations’ IPCC’s 4th Assessment Report.

¹ CARB approved use of 431 million MTCO_{2e} as the state’s 2020 GHG emission target in May 2014. Previously, the target had been set at 427 million MTCO_{2e}.

As shown in Table 4.8-2, statewide GHG emissions have generally decreased over the last decade, with 2018 levels (425 million MTCO₂e) approximately 12 percent less than 2007 levels (488 million MTCO₂e) and below the State's 2020 reduction target of 431 million MTCO₂e. The transportation sector (170 million MTCO₂e) accounted for more than one-third (approximately 40 percent) of the state's total GHG emissions inventory (425 million MTCO₂e) in 2018.

Existing Planning Area GHG Emissions

The existing land uses within the Planning Area contribute to existing city, regional, and statewide GHG emissions. The Planning Area's existing GHG emissions, presented below in Table 4.8-3 (Existing (2020) GHG Emissions in the Planning Area), were estimated using the California Emissions Estimator Model (CalEEMod), Version 2020.4.0. GHG emissions generated within the Planning Area primarily come from the area, energy, and mobile sources described in section 4.3.1, as well as the following additional sources specific to GHG emissions:

- **Energy use and consumption:** Emissions generated from purchased electricity and natural gas. As estimated using CalEEMod, the existing land uses in the Planning Area use and consume approximately 248,937 megawatt hours (MWh) of electricity per year and 1,116,789 million British Thermal Units (MMBtu) of natural gas per year.
- **Solid waste disposal:** Emissions generated from the transport and disposal of generated waste. CalEEMod estimates approximately 36,574 tons of solid waste are generated per year by the people working and living within the Planning Area.
- **Water/wastewater:** Emissions from electricity used to supply water to land uses and treat the resulting wastewater generated. As estimated in CalEEMod, existing land uses within the Planning Area use approximately 2,963 million gallons of water per year.

The Planning Area's existing GHG emissions were estimated using default emissions assumptions provided by CalEEMod and are summarized in Table 4.8-3 (Existing GHG Emissions in the Planning Area) below. As this GPU is to analyze housing impacts, the existing residential population has been used for a population. The emissions are based on Year 2040 vehicle fleet characteristics and Renewable Portfolio Standard (RPS) energy goals (60 percent renewable energy) and represent the projected emissions that existing land uses would generate in the future (assuming no increase in population or change in land uses). This scenario provides an estimate of how emissions would change in the Planning Area as a result of regulations that would reduce motor vehicle emissions in the future, and allows for distinguishing the potential change in emissions that would occur from the proposed change in land uses that would occur with implementation and buildout of the Project in Year 2040, as opposed to a change in emissions that would occur from regulatory requirements that would be in place whether or not the Project is adopted.

**Table 4.8-3:
Existing Land Use GHG Emissions Estimates**

Source	GHG Emissions (Metric Tons / Year)			
	CO ₂	CH ₄	N ₂ O	Total MTCO _{2e}
Existing Land Use Operational Emissions in Year 2040 (Future Conditions)				
Area	3,705	0	0	3,781
Energy	82,629	5	2	83,211
Mobile	309,990	21	14	314,784
Waste	7,424	439	0	18,393
Water	2,603	83	2	5,280
Total Existing GHG ^(A)	406,351	549	18	425,449
Residential Population				107,731
Existing GHG Efficiency (MTCO _{2e} / SP)				3.95
Source: MIG, 2021 (see Appendix D)				
(A) Totals may not equal due to rounding.				

4.8.2 Regulatory Framework

International and Federal

International Regulation and the Kyoto Protocol

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the “United Nations’ Framework Convention on Climate Change” agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan currently consists of more than 50 voluntary programs for member nations to adopt.

Federal Regulation and the Clean Air Act

On December 7, 2009, the U.S. EPA issued an endangerment finding that current and projected concentrations of the six Kyoto GHGs in the atmosphere (CO₂, CH₄, N₂O, SF₆, HFCs, and PFCs) threaten the public health and welfare of current and future generations. This finding came in response to the Supreme Court ruling in *Massachusetts v. EPA*, which found that GHGs are pollutants under the Federal Clean Air Act. As a result, the U.S. EPA issued its GHG Tailoring Rule in 2010, which applies to facilities that have the potential to emit more than 100,000 MTCO_{2e}. In 2014, the U.S. Supreme Court issued its decision in *Utility Air Regulatory Group v. EPA* (No. 12-1146), finding that the U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a “major” source required to obtain a permit pursuant to the “Clean Air Act’s Prevention of Significant Deterioration” or “Title V” operating permit programs. The U.S. EPA’s Greenhouse Gas Reporting Program requires facilities that emit 25,000 MTCO_{2e}

or more of GHG to report their GHG emissions to the U.S. EPA to inform future policy decisionmakers.

The Current Administration

Former President Trump and the U.S. EPA, during the time of the Trump administration, stated their intent to halt various federal regulatory activities to reduce GHG emissions. President Biden, who took office in January 2021, and his administration have begun to strengthen federal policy once again around GHG emissions on a national level. California and other states are still challenging some federal actions undertaken during the time of the Trump administration that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. The timing and consequences of these types of federal decisions and potential responses from California and other states are speculative at this time.

The United States participates in the United Nations Framework Convention on Climate Change. While the United States signed the Kyoto Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2015, the Paris Agreement was adopted, which aims at keeping global temperature rise this century below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit temperature increase above an additional 1.5 degrees Celsius. The Agreement was signed by President Obama in April 2016, but the agreement does not contain enforcement provisions that would require U.S. Senate ratification. On November 4, 2019, Former President Trump formally began the process to leave the Paris Climate Agreement. In accordance with Article 28 of the Paris Agreement, that process was complete on November 4, 2020. As one of his first acts in the Oval Office, President Biden signed an executive order to have the United States rejoin the Paris Climate Agreement. At this time, there are no federal regulations or policies pertaining to GHG emissions that directly apply to the Project.²

Federal Vehicle Standards

In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the U.S. EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, U.S. EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO₂ in model year 2025, on an average industry fleetwide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel

² Though the U.S. EPA announced the Clean Power Plan on August 3, 2015, which sets standards for power plants and customizes goals for states to cut their carbon pollution, the U.S. Supreme Court stayed implementation of the Plan on February 9, 2016, pending further judicial review.

efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the U.S. EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 percent to 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018–2027 for certain trailers, and model years 2021–2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons (MT) and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (U.S. EPA and NHTSA, 2016).

In August 2018, The USEPA and NHTSA released a notice of proposed rulemaking called Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule).

On September 27, 2019, the U.S. EPA and the NHTSA published the SAFE Vehicles Rule Part One: One National Program.” (84 Fed. Reg. 51,310; Sept. 27, 2019.) The Part One Rule revoked California’s authority to set its own greenhouse gas emissions standards and set zero emission vehicle mandates in California. As a result of the loss of the zero emission vehicles (ZEV) sales requirements in California, there may be fewer ZEVs sold and thus additional gasoline-fueled vehicles sold in future years (CARB 2019b).

In April 2020, the U.S. EPA and NHTSA issued the SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (Final SAFE Rule) that relaxed federal greenhouse gas emissions and fuel economy standards. The Final SAFE Rule relaxed federal greenhouse gas emissions and Corporate Average Fuel Economy (CAFE) standards to increase in stringency at approximately 1.5 percent per year from model year (MY) 2020 levels over MYs 2021–2026. The previously established emission standards and related “augural” fuel economy standards would have achieved approximately 4 percent per year improvements through MY 2025. The Final SAFE Rule affects both upstream (production and delivery) and downstream (tailpipe exhaust) CO₂ emissions (CARB, 2020) and has been challenged by 23 states. The litigation is ongoing.

State

Assembly Bill 32 (California Global Warming Solutions Act) and Related GHG Goals

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 establishes the caps on statewide greenhouse gas emissions proclaimed in Executive Order (EO) S-3-05 and established the timeline for meeting State GHG reduction targets. The deadline for meeting the 2020 reduction target is December 31, 2020.

As part of AB 32, CARB determined 1990 GHG emissions levels and projected a “business-as-usual” (BAU)³ estimate for 2020, to determine the amount of GHG emission reductions that would need to be achieved. In 2007, CARB approved a statewide 1990 emissions level and corresponding 2020 GHG emissions limit of 427 million MTCO₂e (CARB, 2007). In 2008, CARB adopted its *Climate Change Scoping Plan*, which projects 2020 statewide GHG emissions levels of 596 million MTCO₂e and identifies numerous measures (i.e., mandatory rules and regulations and voluntary measures) that will achieve at least 174 million MTCO₂e of GHG reductions and bring statewide GHG emissions to 1990 levels by 2020 (CARB, 2009).

EO B-30-15, 2030 Carbon Target and Adaptation, issued by Governor Brown in April 2015, set a target of reducing GHG emissions by 40 percent below 1990 levels in 2030. To achieve this ambitious target, Governor Brown identified five key goals for reducing GHG emissions in California through 2030:

- Increase renewable electricity to 50 percent.
- Double energy efficiency savings achieved in existing buildings and make heating fuels cleaner.
- Reduce petroleum use in cars and trucks by up to 50 percent.
- Reduce emissions of short-lived climate pollutants.
- Manage farms, rangelands, forests, and wetlands to increasingly store carbon.

By directing State agencies to take measures consistent with their existing authority to reduce GHG emissions, EO B-30-15 establishes coherence between the 2020 and 2050 GHG reduction goals set by AB 32 and seeks to align California with the scientifically established GHG emissions levels needed to limit global warming below two degrees Celsius.

To reinforce the goals established through EO B-30-15, Governor Brown signed SB 32 and AB 197 on September 8, 2016. SB 32 made the GHG reduction target (to reduce GHG emissions by 40 percent below 1990 levels by 2030) a requirement, as opposed to a goal. AB 197 gives the Legislature additional authority over CARB to ensure the most successful strategies for lowering emissions are implemented, and requires CARB to, “protect the State’s most impacted and disadvantaged communities ...[and] consider the social costs of the emissions of greenhouse gases.”

Scoping Plan

The CARB Scoping Plan is the comprehensive plan primarily directed at identifying the measures necessary to reach the GHG reduction targets stipulated in AB 32. The key elements of the 2008 Scoping Plan were to expand and strengthen energy efficiency programs, achieve a statewide renewable energy mix of 33 percent, develop a cap-and-trade program with other partners (including seven states in the United States and four territories in Canada) in the Western Climate Initiative, establish transportation-related targets, and establish fees (CARB, 2009). CARB

³ BAU is a term used to define emissions levels without considering reductions from future or existing programs or technologies.

estimated that implementation of these measures will achieve at least 174 million MTCO₂e of reductions and reduce statewide GHG emissions to 1990 levels by 2020 (CARB, 2009).

In a report prepared on September 23, 2010, CARB indicated 40 percent of the reduction measures identified in the Scoping Plan had been secured (CARB 2010). Although the cap-and-trade program began on January 1, 2012 (after CARB completed a series of activities dealing with the registration process, compliance cycle, and tracking system), covered entities did not have an emissions obligation until 2013. In August 2011, the Scoping Plan was reapproved by CARB with the program’s environmental documentation.

On February 10, 2014, CARB released the public draft of the “First Update to the Scoping Plan.” “The First Update” built upon the 2008 Scoping Plan with new strategies and recommendations, and identified opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments (CARB 2014). “The First Update” defined CARB’s climate change priorities over the next five years, and set the groundwork to reach post-2020 goals set forth in Executive Orders S-3-05 and B-16-12. It also highlighted California’s progress toward meeting the 2020 GHG emission reduction goals defined in the 2008 Scoping Plan. “The First Update” evaluated how to align the State’s long-term GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. “The First Update” to the Scoping Plan was approved by the Board on May 22, 2014.

The second update to the scoping plan, the 2017 Climate Change Scoping Plan update (CARB 2017), was adopted by CARB in December 2017. The primary objective for the 2017 Climate Change Scoping Plan is to identify the measures required to achieve the mid-term GHG reduction target for 2030 (i.e., reduce emissions by 40 percent below 1990 levels by 2030) established under EO B-30-15 and SB 32. The 2017 Climate Change Scoping Plan identifies an increased need for coordination among State, regional, and local governments to realize the potential for GHG emissions reductions that can be gained from local land use decisions. It notes that emissions reductions targets set by more than one hundred local jurisdictions in the state could result in emissions reductions of up to 45 million MTCO₂e and 83 million MTCO₂e by 2020 and 2050, respectively. To achieve these goals, the 2017 Scoping Plan Update includes a recommended plan-level efficiency threshold of six metric tons or less per capita by 2030 and no more than two metric tons per capita by 2050. The major elements of the 2017 Climate Change Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero emission vehicle (ZEV) buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewable Portfolio Standard (RPS) to 50 percent and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.

4.8 – Greenhouse Gases

- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing CH₄ and hydrocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Senate Bill 375 (Sustainable Communities and Climate Protection Act)

California enacted legislation (SB 375) to attempt to reduce GHG emissions by modifying land use planning and approval practices. SB 375, signed in September 2008, requires metropolitan planning organizations (MPO), such as ABAG, to adopt a sustainable community strategy (SCS) or alternative planning strategy when preparing their updated Regional Transportation Plans for the purpose of reducing GHG emissions. All future transportation funding must be consistent with the SCS. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. SB 375 also directs CARB to develop regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB will work with the MPOs and regional planning agencies (ABAG and MTC in the Bay Area) to align their regional transportation, housing and land use plans to reduce vehicle miles traveled and attain its GHG reduction targets. However, the regional targets for reductions in GHG emissions have not yet been adopted by CARB.

SB 375 also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments within an MPO that meet certain requirements. City or county land use policies, including general plans, are not required to be consistent with the regional transportation plan. However, new provisions of CEQA would incentivize qualified projects and categorize projects as transit priority projects if they are consistent with an approved SCS or alternative planning strategy.

Senate Bill 97 - Modification to the Public Resources Code

Related to AB 32, Senate Bill 97 (SB 97) required that by July 1, 2009, the California Office of Planning and Research (OPR) prepare, develop, and transmit to the Resources Agency (Natural Resource Agency) guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, including but not limited to effects associated with transportation or energy consumption. OPR transmitted draft guidelines to the Natural Resources Agency in June 2009.

Per SB 97, the draft guidelines were approved in December 2009, meeting the requirement of the Natural Resources Agency to certify and adopt the guidelines by January 1, 2010. The guidelines incorporate proposed text changes related to the significance criteria for evaluating GHG emissions on the environment. The draft guidelines were formalized on March 18, 2010 and all CEQA documents prepared after this date are required to comply with the OPR-approved amendments to the CEQA guidelines. As part of these guidelines, OPR recommends that each

agency develop an approach to determining the significance of GHG emissions, based to the extent possible on scientific and factual data, that considers the following factors: (1) the extent to which the project may increase or reduce GHG emissions compared to the existing environment; (2) whether project emissions exceed a threshold of significance that the lead agency has determined applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for reducing or mitigating greenhouse gas emissions.

The OPR does not identify a threshold of significance for GHG emissions within the amended CEQA guidelines, nor has it prescribed methodologies or specific mitigation measures for evaluating and reducing GHG emissions. Thus, the amendments encourage lead agencies to develop their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier subsequent project-level environmental review processes.

At this time, neither the City of Redwood City nor the BAAQMD have formalized a significance threshold for GHG emissions within the City or region. However, the BAAQMD released GHG thresholds in 2017 as part of the BAAQMD CEQA Air Quality Guidelines, which provide guidance on quantifying and evaluating GHG emissions.

The BAAQMD CEQA Air Quality Guidelines propose an operational-related threshold of significance for GHG emissions for plans (including General Plans) but do not propose a threshold of significance for construction-period GHG emissions. As of 2017, the BAAQMD proposed a threshold of 6.6 metric tons of CO₂e per year per service population for long-range, plan-level GHG emission impacts. In other words, a plan that complied with the BAAQMD standard would result in not more than 6.6 metric tons of CO₂e emissions per year per resident and employee (BAAQMD 2017).

Senate Bill 350 (Clean Energy and Pollution Reduction Act) and Senate Bill 100

SB 350 was signed into law in September 2015 and establishes tiered increases to the RPS. The Bill requires 40 percent of the state's energy supply to come from renewable sources by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. SB 100, signed by Governor Brown on September 10, 2018, increased the RPS requirement for 2030 from 50 percent to 60 percent.

Assembly Bill 1493

With the passage of AB 1493 (Pavley I) in 2002, California launched an innovative and pro-active approach for dealing with GHG emissions and climate change at the state level. AB 1493 requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards apply to automobiles and light trucks from 2009 through 2016. Although litigation was filed challenging these regulations, and the U.S. EPA initially denied California's related request for a waiver, a waiver was granted. In 2012, the U.S. EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 among light-duty vehicles. In January 2012, CARB approved the Advanced Clean Cars (ACC) program (formerly known as Pavley II) for model years 2017 through

2025. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations and the ZEV regulation. The program combines the control of smog, soot, and GHGs and requirements for greater numbers of zero-emission vehicles into a single package of standards.

Executive Order B-30-15, Senate Bill 32 & Assembly Bill 197 (Statewide Interim GHG Targets)

California EO B-30-15 (April 29, 2015) set an “interim” statewide emission target to reduce greenhouse emissions to 40 percent below 1990 levels by 2030 and directed state agencies with jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve this 2030 target and the 2050 target of 80 percent below 1990 levels. Specifically, the EO directed CARB to update the Scoping Plan to express this 2030 target in metric tons. AB 197 (September 8, 2016) and SB 32 (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in EO B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-55-18

Governor Brown issued EO B-15-18 on September 10, 2018, which directs the State to achieve carbon neutrality as soon as possible and no later than 2045, and achieve and maintain net negative emissions thereafter.

Title 24 Energy Standards

The California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is 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.” The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC).

CALGreen Code contains both mandatory and voluntary measures. For non-residential land uses there are 39 mandatory measures including, but not limited to exterior light pollution reduction, wastewater reduction by 20 percent, and commissioning of projects over 10,000 square feet. Two tiers of voluntary measures apply to non-residential land uses, for a total of 36 additional elective measures.

California’s Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2019 standards, adopted May 9, 2018, became effective on January 1, 2020 and improve upon existing standards, focusing on three key areas: proposing new requirements for installation of solar photovoltaics for newly constructed low-rise residential buildings; updating current ventilation and Indoor Air Quality (IAQ) requirements, and extending Title 24 Part 6 to apply to healthcare facilities. The 2019 standards also propose several smaller improvements in energy efficiency.

Center for Biological Diversity v. California Department of Fish and Wildlife

In its decision in *Center for Biological Diversity v. California Dept. of Fish and Wildlife (Newhall)* 62 Cal.4th 204 (2015), the California Supreme Court set forth several options that lead agencies may consider for evaluating the cumulative significance of a proposed project’s GHG emissions:

- 1) A calculation of emissions reductions compared to a BAU scenario based upon the emissions reductions in CARB’s Scoping Plan, including examination of the data to determine what level of reduction from BAU a new land use development at the proposed location must contribute in order to comply with statewide goals.
- 2) A lead agency might assess consistency with AB 32’s goals by looking to compliance with regulatory programs designed to reduce GHG emissions from particular activities.
- 3) Use of geographically specific GHG emission reduction plans to provide a basis for tiering and streamlining of project-level CEQA analysis.
- 4) A lead agency may rely on existing numerical thresholds of significance for GHG emissions, though use of such thresholds is not required.

Regional

Redwood City Community Climate Action Plan

The City’s Climate Action Plan (CAP) provides tools and encouragement for residents and local businesses to coordinate with the City to reduce GHG emissions. The CAP was drafted in conjunction with the City’s Climate Action Advisory Team and through extensive public outreach in the community. The CAP, which was acknowledged by the Redwood City Council in November 2020, includes a GHG emissions inventory from the year 2005 and sets forth a GHG reduction target for the year 2030 - a 50 percent decrease in GHG emissions from 2005 levels. To this end, the CAP includes a number of targeted reduction strategies.

Redwood City Green Building Ordinance

“Green building” is the practice of decreasing a building’s demand for energy, water, and other materials and reducing a building’s negative impacts on human health and on the local environment. According to the U.S. Green Building Council (USGBC), buildings annually consume more than 30 percent of the total energy and 60 percent of the electricity used in the United States. The City adopted a Green Building Ordinance (GBO) in 2009 that establishes

building construction guidelines relating to, among other things, sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Commute Alternative Program

Redwood City sponsors a popular Transportation Demand Management (TDM) program, encouraging employees to commute to work using public transit, carpooling, or walking and biking. The TDM program is currently available only to municipal employees, but large employers in the City utilize their own similar programs. This program provides incentives and information to help employees commute to work using a mode other than a single-occupancy vehicle, and also encourages telecommuting when feasible so as to reduce transportation sector related GHG emissions. The program's major financial incentive is a limited number of vouchers available to employees to redeem for transit rides. These are called "commuter checks."

4.8.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to GHG emissions if it would:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases.

Per BAAQMD, the Threshold of Significance for operational-related GHG impacts of plans employs either a GHG efficiency-based metric of 6.6 MT per service population (SP) per year of carbon dioxide equivalent (CO₂e), or a GHG Reduction Strategy option.

4.8.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Greenhouse Gas impacts.

4.8.5 Impacts and Mitigation Measures

This section describes potential impacts related to GHG emissions and recommends mitigation measures, as needed, to reduce significant impacts.

GHG Emissions

Impact GHG-1 – Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Analysis of Impacts

Project implementation would result in construction and operational activities that would generate GHG emissions. As described in more detail below, the GHG emissions generated by the growth envisioned under the Project would not exceed BAAQMD thresholds.

The planned growth envisioned by the Cumulative (2040) Plus Project scenario could result in a net increase of 11,277 dwelling units and 23,616 residents within the Planning Area by 2040 (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period). This growth would result in construction activities that would generate GHG emissions primarily from fuel combustion in equipment during demolition, site preparation, grading, building construction, paving, and architectural coating activities and in worker, vendor, and haul trips to and from future development projects. Construction activities would occur intermittently at different sites within the Planning Area over the next approximately 20 years. Generally, the BAAQMD recommends amortizing construction GHG emissions over a 30-year period since construction activities for a project typically only occur towards the start of a project and cease to emit GHGs upon the completion of construction activities. This normalizes construction emissions so that they can be grouped with operational emissions and compared to appropriate thresholds, plans, etc. As described under Impact AIR-2, there is uncertainty regarding the timing and methods of construction activities that would occur for future development projects. Construction activities would cease to emit GHGs upon completion, unlike operational emissions that would be continuous year after year until the project is decommissioned. For reasons discussed in Impact AIR-2, construction emissions were not estimated for the proposed Project.

The existing and proposed land uses envisioned by the Project would result in operational GHG emissions, primarily from mobile, energy, and area sources. Mobile sources, including vehicle trips to and from land uses within the Planning Area, would result primarily in emissions of CO₂, with emissions of CH₄ and NO₂ also occurring in minor amounts. In addition to mobile sources, GHG emissions would also be generated from natural gas usage, electricity use, water conveyance and use, wastewater treatment, and solid waste disposal. Natural gas use would result in the emission of two GHGs: CH₄ (the major component of natural gas) and CO₂ (from the combustion of natural gas). Electricity use associated with both the physical usage of the development, as well as the energy needed to transport water/wastewater, would result in the production of GHGs if the electricity is generated through non-renewable sources (i.e., combustion of fossil fuels). Solid waste generated by land uses within the Planning Area would contribute to GHG emissions in a variety of ways. Landfills and other methods of disposal use energy when transporting and managing the waste. In addition, landfills, the most common waste management practice, results in the release of CH₄ from the decomposition of organic materials.

Potential operational GHG emissions resulting from operation of the land uses proposed by the Cumulative (2040) Plus Project scenario were estimated using CalEEMod, Version 2016.3.2. The modeling assumes Project growth consistent with the land use development intensities described in Impact AIR-2. The modeling is based on default data assumptions contained in CalEEMod, with the Project-specific modifications described under Impact AIR-2.

The total unmitigated GHG emissions estimated to occur under projected 2040 growth conditions are shown below in Table 4.8-4 and compared against the potential GHG emissions that could

exist in 2040 with the existing Cumulative (2040) scenario. As described above, the BAAQMD recommends the use of an efficiency threshold for plan-level analysis in which potential emissions levels are considered in terms of how many GHG emissions would be produced by each resident and employee using a project’s facilities. Thus, the plan-level threshold of 6.6 MTCO₂e/yr/SP is the primary contextual factor considered in evaluating the significance of the Project’s GHG emissions changes.

**Table 4.8-4:
Unmitigated Project GHG Emissions**

Source	GHG Emissions (MTCO ₂ e / Year)		
	Cumulative (2040) ^(A)	Cumulative (2040) Plus Project	Net Change
Area	3,781	4,374	593
Energy	83,211	93,797	10,586
Mobile	314,784	387,536	72,752
Waste	18,393	20,090	1,697
Water	5,280	6,804	1,524
Total ^(B)	425,449	512,601	87,153
Residential Population	107,731	131,347	23,616
MTCO ₂ e/yr/SP	3.95	3.90	-0.05
BAAQMD Plan Level Significance Threshold	--	6.6	--
Exceeds Threshold?	--	No	--
Source: MD Acoustics (see Appendix D). (A) See Table 4.8-3 for existing GHG emissions in the Planning Area. (B) Totals may not equal due to rounding.			

As shown above in Table 4.8-4, in the Cumulative (2040) Plus Project scenario the Planning Area would emit approximately 512,601 MTCO₂e annually by 2040. Dividing through by the Planning Area’s residential population (131,347 residents) results in an efficiency metric of 3.9 MTCO₂e/yr/SP for the Cumulative (2040) Plus Project scenario. This does not exceed the BAAQMD threshold and shows a reduction from existing and future baseline conditions (the GHG efficiency occurring under the Cumulative (2040) Plus Project scenario would be approximately 1.2 percent less than Cumulative (2040) scenario conditions).

The primary source of Project GHG emissions would be mobile sources, which represent approximately 76 percent of total annual GHG emissions occurring under Cumulative (2040) Plus Project growth conditions. The unmitigated mobile source emission estimates are conservative, since they do not take into account land use interactions (e.g., residential land use proximity to commercial land uses) and transit amenities (e.g., bus routes) that would likely reduce the number of vehicle trips generated in the Planning Area and the quantity of VMT occurring with the Project in 2040. The next highest source of Project GHG emissions would be energy sources, which would represent approximately 18 percent of total annual GHG emissions.

Additionally, while overall energy usage would increase for the Planning Area, energy usage per capita would decrease, specifically by 3.8 percent for electricity and 9 percent for natural gas usage, as shown in Table 4.8-5. The complete energy usage data can be found in the CalEEMod output in Appendix D.

**Table 4.8-5:
Unmitigated Annual Operation Energy Demand Summary**

Natural Gas Demand		kBTU/year
Cumulative (2040) Plus Project	Planning Area	1,239,045,000
	Per Capita	9,433
Cumulative (2040)	Planning Area	1,116,789,400
	Per Capita	10,366
Net Difference		122,255,600
Percent Change Per Capita		-9.0%
Electricity Demand		kWh/year
Cumulative (2040) Plus Project	Planning Area	291,996,900
	Per Capita	2,223
Cumulative (2040)	Planning Area	248,937,300
	Per Capita	2,311
Net Difference		43,059,600
Percent Change Per Capita		-3.8%

Level of Significance Before Mitigation

As shown in Table 4.8-4, the Cumulative (2040) Plus Project growth projection would result in GHG emissions that would not exceed the BAAQMD plan-level significance threshold and would therefore have a **less than significant impact**.

Mitigation Measures

None required.

Applicable Plan, Policy, or Regulation

Impact GHG-2 – The proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases.

Analysis of Impacts

CARB Scoping Plan

As discussed in section 4.8.2, the 2017 Climate Change Scoping Plan is CARB's primary document used to ensure State GHG reduction goals are met. The plan identifies an increasing need for coordination among State, regional, and local governments to achieve the GHG

emissions reductions that can be gained from local land use planning and decisions. The major elements of the 2017 Climate Change Scoping Plan, which is designed to achieve the State's 2030 GHG reduction goal, are listed in section 4.8.2. Nearly all of the specific measures identified in the 2017 Climate Change Scoping Plan would be implemented at the state level, with CARB and/or another state or regional agency having the primary responsibility for achieving required GHG reductions. The Project, therefore, would have limited ability to directly conflict with any of the specific measures identified in the 2017 Climate Change Scoping Plan. Nonetheless, the overarching goal of the 2017 Climate Change Scoping Plan is to achieve a 40 percent reduction in GHG emissions below 1990 levels by the Year 2030. To achieve this statewide goal, the 2017 Climate Change Scoping Plan recommends a statewide efficiency metric of six metric tons per capita by 2030 and two metric tons per capita by 2050. These statewide per capita targets are based on the statewide GHG emissions inventory that includes all emissions sectors in the State. Under an unmitigated scenario as shown in Table 4.8-4, implementation of the proposed Project is estimated to result in a GHG emission efficiency of 3.9 MTCO_{2e} per capita. Project growth would result in emissions that meet the 2017 Climate Change Scoping Plan adjusted statewide 2040 metric of four MTCO_{2e} per capita employed for this EIR.⁴

Level of Significance Before Mitigation

As discussed above, the Project's unmitigated GHG emissions would be consistent with the CARB Scoping Plan's interpolated per capita GHG efficiency metric and would have a **less than significant impact**.

Mitigation Measures

None required.

4.8.6 References

Bay Area Air Quality Management District (BAAQMD).

2017. California Environmental Quality Act Air Quality Guidelines. San Francisco, CA. June 2010, updated May 2017.

California Air Pollution Control Officers Association (CAPCOA)

2010. Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. August 2010.

2017. CalEEMod User Manual Appendix A Calculation Details. Prepared for CAPCOA. Prepared by Trinity Consultants, Dallas TX. October 2017.

California Air Resources Board (CARB)

⁴ The Project plans for growth through Year 2040. Therefore, the 2040 statewide efficiency metric is linearly derived from the State's 2030 (6 MTCO_{2e} per capita) and 2050 (2 MTCO_{2e} per capita) targets.

2007. Staff Report California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit. Sacramento, CA. November 16, 2007. http://www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf2009

2009. Climate Change Scoping Plan – A Framework for Change. Endorsed by CARB December 2008. Sacramento, CA. May 11, 2009. <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>

2010. AB 32 Climate change, Scoping Plan Progress Report. September 2010.

2014. First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006. May 2014. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf

2017. 2017 Climate Change Scoping Plan. November 2017. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

2018. Proposed Amendments to the Low Carbon Fuel Standards Regulation and to the Regulation on Commercialization of Alternative Diesel Fuels Staff Report: Initial Statement of Reasons” March 6, 2018. <https://www.arb.ca.gov/regact/2018/lcfs18/isor.pdf>

2018. SB 375 Regional Greenhouse Gas Emission Reduction Targets. March 2018. <https://www.arb.ca.gov/cc/sb375/finaltargets2018.pdf>.

2020. California Greenhouse Gas Emission by Scoping Plan Category (Thirteenth Edition: 2000 to 2018). October 15, 2020. <https://www.arb.ca.gov/cc/inventory/data/data.htm>

California Energy Commission (CEC)

2015. Integrated Energy Policy Report. 2015.

2017. 2019 Building Energy Efficiency Standards PreRulemaking. Docket Number 17-BSTD-01. April 24, 2017.

2018. Building Energy Efficiency Standards for Residential and Nonresidential Buildings 2019. December 2018.

California Natural Resources Agency (CNRA)

2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf

2018. Safeguarding California Plan: 2018 Update. January 2018.

Fehr & Peers

2022. Transportation Impact Analysis for the Redwood City General Plan. July.

National Oceanic and Atmospheric Administration (NOAA)

2021. Trends in Atmospheric Carbon Dioxide Mauna Loa, Hawaii. Earth System Research Laboratory. Global Monitoring Division. May 5, 2021. Web. May 20, 2021. <https://www.esrl.noaa.gov/gmd/ccgg/trends/>

U.S. Environmental Protection Agency (EPA)

2015. Program Overview for Renewable Fuel Standard. <https://www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard>.

2016. EPA and DOT Finalize Greenhouse Gas and Fuel Efficiency Standards for Heavy-Duty Trucks. August 2016. <https://www.transportation.gov/briefing-room/epa-and-dot-finalize-greenhouse-gas-and-fuel-efficiency-standards-heavy-duty-trucks>

2021. Emissions & Generation Resources Integrated Database (eGRID). February 2021. <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>

List of Acronyms, Abbreviations, and Symbols	
Acronym, Symbol, Abbreviation	Description
AB	Assembly Bill
ACC	Advanced Clean Cars
BAU	Business-As-Usual
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBSC	California Building Standards Commission
CEC	California Energy Commission
CFC	Chlorofluorocarbon
C _H 4	Methane
CNRA	California Natural Resources Agency
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
EIR	Environmental Impact Report
EO	Executive Order
EV	Electric Vehicle
GHG	Greenhouse Gases
GWP	Global Warming Potential

List of Acronyms, Abbreviations, and Symbols	
Acronym, Symbol, Abbreviation	Description
HFC	Hydrofluorocarbon
IAQ	Indoor Air Quality
LCFS	Low Carbon Fuel Standard
LEV	Low-Emission Vehicle
MMBTU	Million British Thermal Units
MTCO _{2e}	metric tons of CO ₂ equivalents
MWh	Megawatt-hours
N ₂ O	Nitrous Oxide
PFC	Perfluorocarbon
ppm	parts per million
RPS	Renewable Portfolio Standard
SB	Senate Bill
SF ₆	Sulfur Hexafluoride
SOI	Sphere of Influence
SP	Service Population
TDM	Transportation Demand Management
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle Miles Travelled
ZEV	Zero Emission Vehicle
°F	Degrees Fahrenheit
%	Percent

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4.9 Hazards and Hazardous Materials

This section describes the existing hazards setting within the Planning Area, analyzes hazards and hazardous materials impacts associated with implementation of the proposed Project, and identifies mitigation measures, if needed.

4.9.1 Environmental Setting

Hazardous Materials

Many common service facilities produce hazardous waste such as gasoline stations and dry cleaners. The California Environmental Protection Agency (CalEPA) Toxic Release Inventory Program manages a database of facilities that emit toxic chemicals known to be harmful to human health and tracks hazardous waste transporters. The State of California categorizes hazardous waste generators as either Small Quantity Generators (SQG) or Large Quantity Generators (LQG). SQGs in the Planning Area produce up to 2,200 pounds of hazardous waste per month, while LQGs in the Planning Area produce more than 2,200 pounds of waste per month. Hazardous waste can be transported by air, rail, highway, or water.

The provisions in Government Code Section 65962.5 are commonly referred to as the “Cortese List.” The list, or a site’s presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). The Cortese List includes hazardous materials sites maintained by CalEPA selected from the following data resources: Department of Toxic Substances Control (DTSC) EnviroStor database, State Water Resources Control Board (SWRCB) GeoTracker database, SWRCB solid waste sites with waste constituents above hazardous waste levels outside the waste management unit, SWRCB “active” Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO), and the DTSC’s list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code (CalEPA 2022).

Active and open hazardous materials sites from the Cortese List within the Planning Area are summarized in Table 4.9-1, Hazardous Materials Contamination Sites. Table 4.9-1 includes information from the DTSC EnviroStor database (DTSC 2022) which is a data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites. In addition, the California SWRCB GeoTracker database (CA SWRCB 2022) is a data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. The U.S. Environmental Protection Agency (U.S. EPA) Superfund Enterprise Management System database (U.S. EPA 2022) was also accessed for land within the Planning Area. According to these sources, there are no active federal Superfund sites within the Planning Area. However, there is one open Cleanup Program site and three open Leaking Underground Storage Tank (LUST) Cleanup sites within the Planning Area (EnviroStor 2022; GeoTracker 2022). According to GeoTracker, there are another 196 LUST Cleanup sites in the Planning Area that are closed or completed (GeoTracker 2022). A designation of “open” status indicates that there is an ongoing case that has been opened by a regulatory agency and the site is undergoing assessment, remediation, or site monitoring. A

“closed” status indicates that a regulatory agency has determined that no further remediation activities are required.

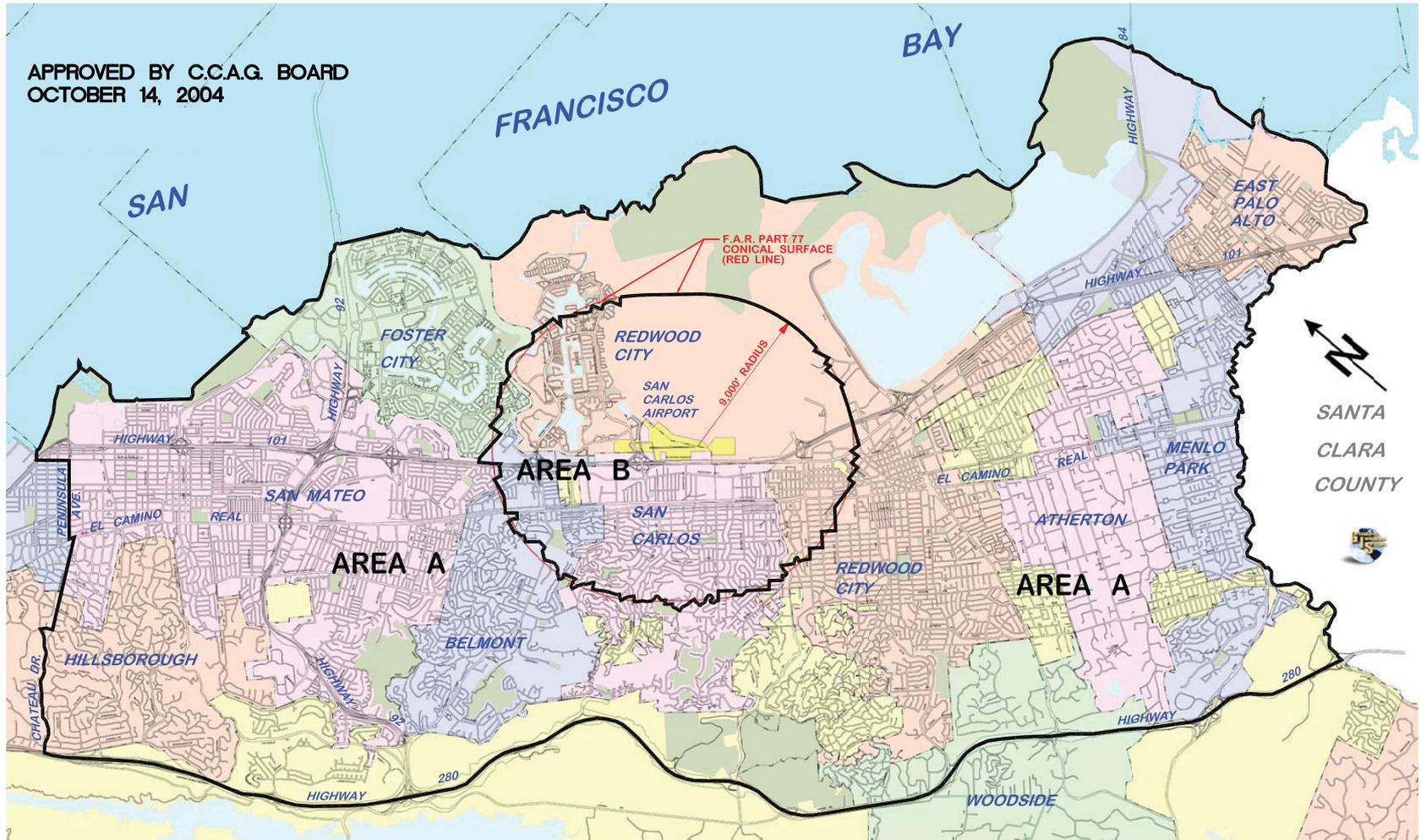
**Table 4.9-1:
Hazardous Materials Contamination Sites**

Facility Name	Address	Type of Case	Clean-Up Status
GeoTracker			
Cissna Chevron (Chevron #381493)	999 El Camino Real	LUST Cleanup Site	Open - Site Assessment
Unocal Station #0060	2653 Broadway	LUST Cleanup Site	Open - Eligible for Closure
USA Independent	3139 Jefferson Avenue	LUST Cleanup Site	Open – Eligible for Closure
EnviroStor			
1172 Broadway	1172 Broadway	State Response – DTSC Cleanup Program	Active
Source: CalEPA, Cortese List Data Resources; Department of Toxic Substances Control, <i>EnviroStor</i> ; California State Water Resources Control Board, <i>GeoTracker</i> , (accessed August 2022).			

Airport Hazards

The San Carlos Airport is in the City of San Carlos and located northwest of Redwood City. The airport is located along the Bayshore between Redwood Shores (the northernmost part of the City) and Bair Island. The constant flow of air traffic in and around airports poses a safety hazard for surrounding land uses. Aircraft accidents are more likely to occur in areas immediately around the airport. Harm to life or damage to property can result from crashes and collisions during the take-off and landing of airplanes. Figure 4.9-1 shows the Airport Influence Area (AIA) for the San Carlos Airport. The western portion of Redwood City and the Planning Area are located within the San Carlos Airport AIA within the CCAG/ALUC Review Area Boundary Figure 4.9-2). (Noise from the airport affecting properties along U.S. 101 and in Redwood Shores is discussed in Chapter 4.13, Noise.)

APPROVED BY C.C.A.G. BOARD
OCTOBER 14, 2004



CCAG LANDUSE COMMITTEE RECOMMENDATION REVISED AIRPORT INFLUENCE AREA BOUNDARY FOR SAN CARLOS AIRPORT -- AREAS A & B (OCTOBER 2004)

AREA A: PROPOSED REVISED AIRPORT INFLUENCE AREA
(AIA) BOUNDARY (real estate disclosure only)

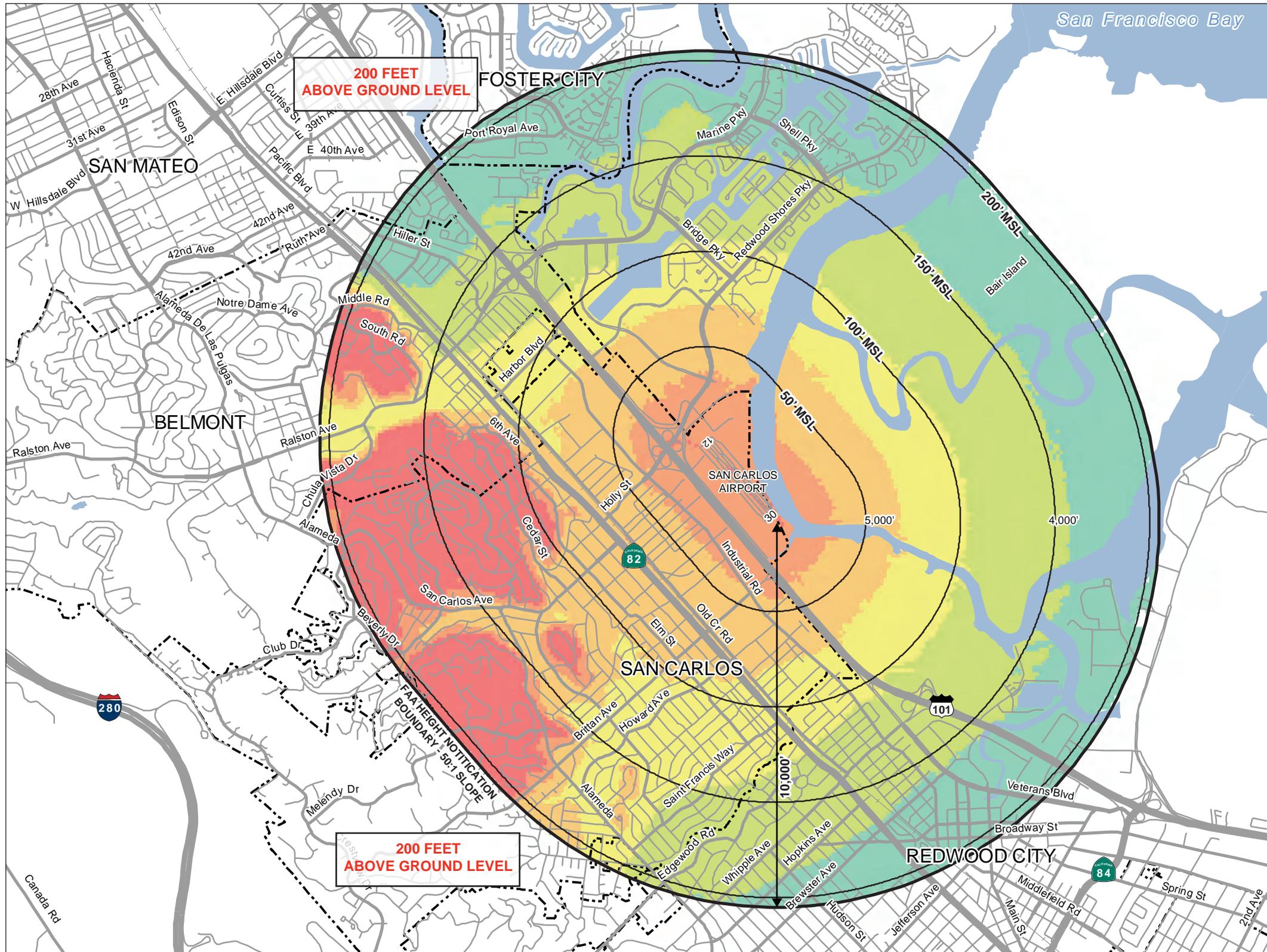
AREA B: PROPOSED CCAG/ALUC REVIEW AREA BOUNDARY*
(real estate disclosure and formal CCAG/ALUC review)

* This boundary is a refinement of the current CCAG/ALUC review boundary.

Source: City/County Association of Governments of San Mateo County (C/CAG), April 2015

**Figure 4.9-1:
Airport Influence Area for the San Carlos Airport**

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FAA NOTIFICATION REQUIREMENTS

A structure proponent must file FAA Form 7460-1, Notice of Proposed Construction or Alteration, for any proposed construction or alteration that meets any of the following Notification Criteria described in 14 CFR Part 77.9:

§77.9(a) – A height more than 200 feet above ground level (AGL) at its site;

§77.9(b) – Within 10,000 feet of a runway less than 3,200 feet in length, and exceeding a 50:1 slope imaginary surface (i.e., a surface rising 1 foot vertically for every 50 feet horizontally) from the nearest point of the nearest runway. The 50:1 surface is shown as follows:

— 10,000 Feet from Runway 12-30

-100- Elevation Above Mean Sea Level

Heights Of 50:1 Surface Above Ground (AGL)

- Terrain Penetration of Airspace Surface
- Less than 30
- 30-65
- 65-100
- 100-150
- 150-200
- 200 and more

§77.9(c) – Roadway, railroads, and waterways are evaluated based on heights above surface providing for vehicles; by specified amounts or by the height of the highest mobile object normally traversing the transportation corridor;

§77.9(d) – Any construction or alteration on any public-use military airport or (heliport).

Structure proponents or their representative may file via traditional paper forms via US mail, or online at the FAA's OE/AAA website, <http://oeaaa.faa.gov>

LEGEND

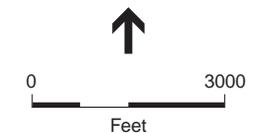
- Municipal Boundary
- Railroad
- Freeway
- Road

Note:

Per 14 CFR Part 77, developers proposing structures taller than the indicated elevations must file Form 7460-1 with the FAA at least 30 days before the proposed construction. However, due to local requirements for a favorable FAA determination as a contingency for project approval, it is advisable to file the Form 7460-1 as soon as possible because the FAA can take several months to undertake aeronautical reviews.

Source:

ESA Airports, based on 14 CFR Part 77, Subpart B, Section 77.9



SOURCE: USGS, 1999-2013; ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

Figure 4.9-2: San Carlos ALUCP FAA Notification Requirements

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Wildfire Hazards

Generally, the greatest potential for wildfire hazards occurs in areas adjacent to abundant natural vegetation. In San Mateo County, the open space between the developed Bayshore and the western side of the county along the Pacific Ocean represents the most significant risk of wildfire. In the Planning Area, areas designated as “Very High Fire Hazard Severity” (VHFHS) Zones are found in the foothills in the west, near these open space areas. The Redwood City Fire Department provides firefighting services to the Local Responsibility Area (LRA). The Redwood City Fire Department Fire Prevention Bureau reviews and approves development plans for fire safety. The San Mateo County Fire Department (CAL FIRE’s San Mateo-Santa Cruz Unit) provides firefighting services to the State Responsibility Area (SRA). New construction within the VHFHSZ is required to comply with California Building Code Chapter 7A, including requirements for fire retardant or ignition resistant construction materials at roofs, eaves, vents, exterior walls, exterior windows and doors, decks, and areas below decks. California Government Code §51182 also requires buildings within these areas to provide defensible space. Defensible space must be maintained up to 100 feet (or the property line, whichever is less) from the building. The Redwood City Building Code also requires fire retardant roofing (§R905.1.3) and fire sprinklers (§903.2).

4.9.2 Regulatory Framework

Federal

U.S. Environmental Protection Agency (U.S. EPA)

The U.S. EPA regulates chemical and hazardous materials use, storage, treatment, handling, transport, and disposal practices. The agency protects workers and the community (along with California Occupational Safety and Health Administration [CalOSHA], see below), integrating the Federal Clean Water Act and Clean Air Act into California Legislation.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Adopted in 1980, CERCLA was developed to remove contamination of water, air, and land resources from past chemical disposal practices. Also known as the “Superfund Act,” CERCLA contains a list of sites referred to as Superfund sites, where there is an imminent threat to human health. CERCLA collects taxes from the chemical and petroleum industries to clean abandoned or uncontrolled hazardous sites using short-term and long-term responses techniques.

The Resources Conservation and Recovery Act (RCRA)

The RCRA regulates hazardous wastes with a ‘cradle-to-grave’ approach, meaning that all hazardous wastes are tracked and strictly regulated from generation to disposal, and waste generators are required to report use or transport of hazardous wastes to the U.S. EPA. Hazardous waste generators range from small producers, such as dry cleaners and automobile repair facilities, to larger producers such as hospitals and manufacturing operations. The U.S. EPA categorizes Small Quantity Generators (SQG) as those facilities that produce between 100 and 1,000 kilograms (kg) of hazardous waste per month. Facilities producing less than 100 kg of hazardous waste per month are not subject to RCRA. Large Quantity Generators (LQG) produce

1,000 kg or more hazardous waste per month. LQG and SQG facilities are subject to the storage and transportation requirements of RCRA.

The Federal Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA was enacted to inform communities and residents of chemical hazards in their area, this Act requires the U.S. EPA maintain and publish a list of toxic chemical releases, known as the Toxic Release Inventory (TRI). Facilities required to report include industrial uses that manufacture, process, or use significant amounts of chemicals. Reporting includes types and amounts of chemicals that are released each year into the air, water, and land or transferred off-site. Listing as a TRI facility doesn't necessarily mean that releases are harmful to humans or the environment.

Federal Occupational Safety and Health Administration (OSHA)

OSHA establishes and enforces Federal regulations related to health and safety of workers exposed to toxic and hazardous materials. OSHA also sets health and safety guidelines for construction activities and manufacturing facility operations.

U.S. Department of Transportation (DOT)

The U.S. Department of Transportation (DOT) governs transportation of chemicals and hazardous materials under Title 49 of the Code of Federal Regulations (CFR). DOT stipulates the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. Under the Hazardous Materials Transportation Act and the Hazardous Materials Transportation Uniform Safety Act, State agencies that have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans).

Standardized Emergency Management System and National Incident Management System (SEMS)

According to the State's SEMS, local agencies have primary authority regarding rescue and treatment of casualties and making decisions regarding protective actions for the community. When a major incident occurs the first few moments are critical in terms of reducing loss of life and property. First responders must be sufficiently trained to understand the nature and the gravity of the event to minimize the confusion that inevitably follows catastrophic situations. This on-scene authority rests with the local emergency services organization and the incident commander.

Federal Aviation Administration

The Federal Aviation Administration (FAA) provides regulations controlling land use in airport vicinities, as stipulated in Federal Aviation Regulations (FAR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace. These regulations require that any proposed new construction or expansion of existing structures that would penetrate any of the FAR Part 77 based "imaginary" horizontal and sloping navigational surfaces for airports would be deemed

incompatible unless specifically determined otherwise by the FAA. Projects that plan construction or alterations which may affect navigable airspace are required to file notice with the FAA.

National Response Framework

The 2019 National Response Framework (Framework), published by the Department of Homeland Security, is a national response guide to all types of disasters and emergencies. The Framework describes specific authorities and best practices for managing incidents that range from serious local to large-scale terrorist attacks or catastrophic natural disasters. In addition, the Framework describes the principles, roles, responsibilities, and coordinating structures for responding to an incident and further describes how response efforts integrate with those of the other mission areas.

State

California Occupational Safety and Health Administration (CalOSHA)

CalOSHA is responsible for promulgating and enforcing State health and safety standards and implementing Federal OSHA Laws. CalOSHA's regulatory scope includes provisions to minimize the potential for release of asbestos and lead during construction and demolition activities.

California Environmental Protection Agency (Cal EPA)

The Cal EPA implements and enforces a statewide hazardous materials program known as the Certified Unified Program Agency (CUPA), established by Senate Bill 1802, to enable counties and local government to enforce the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure Plans
- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs
- California Uniform Fire Code, Hazardous Materials Management Plans, and Hazardous Material Inventory Statements

CalEPA/Office of Emergency Services (CalEPA/OES)

Cal/EPA establishes regulations governing the use of hazardous materials in the State to protect air, water, and soil. OES coordinates State and local agencies and resources for educating, planning, and warning citizens of hazardous materials and related emergencies, including organized response efforts in case of emergencies.

CALFIRE, Office of the State Fire Marshal (CAL FIRE-OSFM)

CAL FIRE-OSFM evaluates and provides technical assistance for the Hazardous Material Management Plan (HMMP), the Hazardous Materials Inventory Statement (HMIS) and the Aboveground Petroleum Storage Act (APSA) Programs. The HMMP and HMIS Program are closely tied to the Business Plan Program.

California Fire Code

Redwood City has adopted the 2019 California Fire Code, with amendments to address specific local conditions and needs. These provisions include construction standards and fire hydrant requirements, road widths and configurations designed to accommodate the passage of fire trucks and engines, requirements for minimum fire flow rates for water mains, specifications for exterior materials and construction methods for structures located in the wildland-urban interface (WUI). These regulations pertain to any new building located within a Local Agency 'Very High Fire Hazard Severity Zone' or within a State Responsible 'Moderate,' 'High,' or 'Very High Fire Hazard Severity Zone.'

California Hazardous Waste Control Law

The California Hazardous Waste Control Law is administered by the CalEPA to regulate hazardous wastes. Although the Hazardous Waste Control Law is generally more stringent than RCRA, until the U.S. EPA approves the California Hazardous Waste Control Program (which is charged with regulating the generation, treatment, storage, and disposal of hazardous waste), both the state and federal laws apply in California. The Hazardous Waste Control Law lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills. The California Code of Regulations (CCR) 22 CCR Section 66261.10 provides that waste has "hazardous" characteristics if it has the following effects:

[a](1) a waste that exhibits the characteristics may: (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed or otherwise managed.

According to 22 CCR (Article 11, Chapter 3), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, contaminated, or are being stored prior to proper disposal. Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances (e.g., gasoline, hexane,

and natural gas) are hazardous because of their flammable properties. Corrosive substances (e.g., strong acids and bases such as sulfuric [battery] acid or lye) are chemically active and can damage other materials or cause severe burns upon contact. Reactive substances (e.g., explosives, pressurized canisters, and pure sodium metal, which reacts violently with water) may cause explosions or generate gases or fumes.

Other types of hazardous materials include radioactive and biohazardous materials. Radioactive materials and wastes contain radioisotopes, which are atoms with unstable nuclei that emit ionizing radiation to increase their stability. Radioactive waste mixed with chemical hazardous waste is referred to as “mixed wastes.” Biohazardous materials and wastes include anything derived from living organisms. They may be contaminated with disease-causing agents, such as bacteria or viruses (22 CCR 66251.1 et seq.).

California Department of Toxic Substances Control (DTSC)

The California Department of Toxic Substances Control (DTSC), which is a department of CalEPA, is authorized to carry out the federal RCRA hazardous waste program in California to protect people from exposure to hazardous wastes. The department regulates hazardous waste, cleans up existing contamination, and looks for ways to control and reduce the hazardous waste produced in California, primarily under the authority of RCRA and in accordance with the California Hazardous Waste Control Law (California H&SC Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (Title 22, California Code of Regulations [CCR], Divisions 4 and 4.5). Permitting, inspection, compliance, and corrective action programs ensure that people who manage hazardous waste follow federal and State requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. EnviroStor is DTSC’s data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further.

Underground Tank Regulations

Title 23, Division 3, Chapter 16 (Underground Tank Regulations) of the CCR identifies the regulations applicable to new and existing underground storage tanks. These regulations establish monitoring, maintenance, reporting, abatement, and closure procedures for all underground storage tanks in the state. These regulations are administered by the San Francisco Bay Regional Water Quality Control Board.

California Highway Patrol (CHP)

The CHP has primary regulatory responsibility for the transportation of hazardous wastes and materials in California.

Cortese List

California Government Code Section 65962.5 established the "Cortese List," which requires state agencies to compile a list of all properties affected by hazardous waste and develop a framework for how they will continue to be monitored and addressed by the State. A site's presence on the

list has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA).

California Porter Cologne Water Quality Control Act

Division 7 of the California Water Code (Water Code) identifies the enforcement and implementation rights of the Regional Water Quality Control Board to remedy discharges to surface waters or groundwater that would or could violate water quality standards. Standard remedies include issuance of Cease-and-Desist Orders and cleanup and abatement procedures.

Code of Regulations Title 22

Title 22 of the California Code of Regulations contains all applicable State and Federal laws governing hazardous wastes in the State. Title 22 is more stringent and broader in its coverage of wastes than Federal law. Chapter 51 (Site Remediation) identifies the minimum standards of performance for site investigations and response actions performed by the private sector in site cleanup efforts.

Hazardous waste is any waste with properties that make it potentially dangerous or harmful to human health or the environment. Hazardous waste is defined in one of two ways. Waste is considered hazardous if it appears on one of the five lists created pursuant to the Federal Resource Conservation Recovery Act (RCRA). The lists are known as the F-, K-, P-/U-, and M lists and reflect non-specific source waste, source-specific waste, discarded commercial chemical products, discarded mercury-containing products, respectively. A waste may also be categorized as hazardous if it exhibits one of the four characteristics of hazardous materials: ignitability, corrosivity, reactivity, and toxicity.

Because of its toxicity, solid wastes containing certain levels of lead are considered hazardous and must be handled, transported, and disposed of in accordance with Federal and State law. In California, two thresholds have been established by State regulation to determine if a waste is hazardous due to its lead content. The Total Threshold Limit Concentration (TTLC) establishes a threshold of 1,000 milligrams (mg) of lead per one kilogram (kG) of waste. The Soluble Threshold Limit Concentration (STLC) establishes a threshold of 5 mg of lead per liter (L) of waste extract solution. Hazardous waste must be disposed of at Class I landfills that are specifically designed to accept hazardous waste, such as the Kettleman Hills Landfill in Kettleman City in Kings County.

California Asbestos Standards in Construction

The California Division of Occupational Safety and Health (Cal/OSHA) enforces the California Asbestos Standards in Construction (8 CCR Section 1529). These standards regulate exposure to asbestos in all construction work including demolition of structures. These regulations establish entry and exit procedures after working in asbestos contaminated areas and establish specific control measures designed to protect workers depending on the type of asbestos they are handling. Such procedures include minimum air circulations, use of respirators, wetting of materials, clothing laundering, construction and demolition equipment requirements, and shielding specifications. Notification procedures are also in place that require building owner and employee noticing as well as external and internal hazard signage. All asbestos workers are required to complete training programs and register as an asbestos contractor, depending on the

type of asbestos being removed. Medical examination requirements are also required to monitor worker health, generally on an annual basis.

California Construction Safety Orders for Lead

Title 8, Section 1532.2 (Lead) of the CCR establishes the requirements for any construction worker who may be exposed to lead during demolition or salvage, removal or encapsulation, new construction, and cleanup activities. The construction safety orders establish an action level of 30 micrograms of lead per cubic meter ($\mu\text{g}/\text{cm}^3$) of air calculated over an 8-hour time-weighted average without regard for the use of a respirator, meaning this is the limit where safety protocols must be initiated, such as use of a respirator. Under no circumstance may a worker be exposed to 50 $\mu\text{g}/\text{cm}^3$ over an 8-hour weighted period. These regulations require implementation of engineering and work practice controls such as respiratory protection, protective clothing, housekeeping, hygiene practices, and signage requirements to meet worker exposure limits. Medical monitoring and training requirements are also identified.

Assembly Bill 2948

In response to the growing statewide concern of hazardous waste management, State Assembly Bill 2948 (Tanner 1986) enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within its jurisdiction.

Hazardous Materials Business Plan (CERS Annual Submittal)

In 1986, the California Governor's Office of Emergency Services (Cal OES) established the Hazardous Materials Business Plan (HMBP) Program, which prevents or minimizes damage to the public and the environment from a release of hazardous materials. Under the Program, California businesses that handle hazardous materials were required to submit an HMBP each year. Assembly Bill 1429, which was passed on July 9, 2019, would require a business with a facility that is not required to submit Tier II information pursuant to the above-mentioned federal provision and is not subject to the provisions governing those aboveground storage tanks to submit its business plan once every three years, instead of annually. In Redwood City, HMBPs are submitted to the San Mateo County Environmental Health Division (EHD), the designated CUPA. In general, a HMBP must be submitted if a business handles and/or stores a hazardous material equal to or greater than the minimum reportable quantities. These quantities are 55 gallons for liquids, 500 pounds for solids and 200 cubic feet (at standard temperature and pressure) for compressed gases.

Emergency Services Act

Under the Emergency Services Act, the State of California developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services. The Office of Emergency Services coordinates the responses of other agencies, including the EPA, California

Highway Patrol, Regional Water Quality Control Boards, Air Quality Management Districts, and county disaster response offices.

The Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act requires facilities to disclose to the State and Local Emergency Planning Committee the quantities and type of toxic chemicals stored. To avoid multiple reports to various agencies, the California Health and Safety Code requires notification of chemical inventories to the Administering Agency, which is DTSC. Notification of chemical inventory is accomplished through completion of a Hazardous Materials Business Plan and inventory.

Regional

San Francisco Regional Water Quality Control Board

One of nine regional boards in California, the San Francisco Bay Regional Water Quality Control Board (RWQCB): (1) protects surface and groundwater quality from toxic contamination and pollutants discharged or threatened to be discharged to the Waters of the State; (2) regulates public water systems; and (3) enforces the federal and State Safe Drinking Water acts through the Drinking Water Program. The RWQCB issues and enforces National Pollutant Discharge Elimination System (NPDES) permits and regulates leaking underground storage tanks (LUSTs) and other sources of groundwater contamination.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) regulates the demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos. The BAAQMD is vested with authority to regulate airborne pollutants through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work. BAAQMD regulations must always be followed when removing asbestos or demolishing buildings.

Airport Land Use Compatibility Plan

The updated Airport Land Use Compatibility Plan (ALUCP) for San Carlos Airport is based on the 2010 Airport Layout Plan (ALP) for San Carlos Airport. The County Airport Manager has confirmed that the 2010 ALP reflects the expected growth of the Airport over a 20+ year period through 2035 which is the planning horizon for this ALUCP.

Noise and safety are the two primary airport impact concerns that have the potential to affect the health, safety and welfare of people within the vicinity of an airport. The related issues of overflight (noise) and airspace protection (safety) are also considered when preparing an ALUCP. The ALUCP update for San Carlos Airport addresses four primary land use compatibility concerns:

- Aircraft Noise – reduce the potential number of future residents in the airport environs exposed to excessive noise from aircraft and airport operations.

- Safety of Persons on the Ground – minimize the potential number of residents and workers exposed to hazards related to aircraft operations and accidents.
- Airspace Protection/Building Heights – protect the navigable airspace around the airport and ensure the safe and efficient operation of aircraft in flight.
- Aircraft Overflights – identify areas subjected to frequent aircraft overflights and/or low altitude overflights and require real estate disclosure notices.

Environmental Site Assessment (ESA) Procedures

A Phase I ESA is the initial investigation phase of a process established by the American Society for Testing and Materials Standards (ASTM), as adequate due diligence by new purchasers of properties or their lenders prior to site development. Phase I ESAs must be completed prior to property development by private parties to establish that the buyer has exercised due diligence in purchasing the site. If a Phase I ESA indicates evidence of site contamination, a Phase II ESA would be required prior to site development. The Phase II ESA includes collection of original samples of soil, groundwater, or building materials to measure and analyze quantities of various contaminants. The most frequent substances tested for are petroleum hydrocarbons, heavy metals, pesticides, solvents, asbestos, and mold. Appropriate cleanup levels for each contaminant, based on current and planned land use, would be determined in accordance with professional procedures adopted by the lead agency (e.g., DTSC, RWQCB, BAAQMD, CUPA).

Local

Association of Bay Area Governments (ABAG) Multi-Jurisdictional Local Hazard Mitigation Plan

The ABAG Multi-Jurisdictional Local Hazard Mitigation Plan (“Taming Natural Disasters”) involves local agencies throughout its nine-county Bay Area jurisdiction, with an overall strategy to maintain and enhance disaster response of the region. The plan focuses on mitigation *before* rather than after disasters by: (1) identifying natural hazards faced by the community and region (e.g., earthquakes, flooding, severe weather), (2) assessing the community’s and region’s vulnerability to these hazards, and (3) identifying specific preventive actions that can be taken to reduce the risk from the hazards. The plan, which has been approved by FEMA and adopted by ABAG, fulfills the requirements of the Federal Disaster Mitigation Act of 2000.

Multijurisdictional Local Hazard Mitigation Plan

The San Mateo County Multijurisdictional Local Hazard Mitigation Plan (LHMP), which was last updated in 2021, assesses hazard vulnerabilities, and identifies mitigation actions that local jurisdictions will pursue to reduce the level of injury, property damage, and community disruption that may result from a disaster. The LHMP addresses natural and human-caused hazards, including flooding, drought, wildfire, landslides, severe weather, terrorism, cyber threats, pandemic, and the impact of climate change on hazards, as well as other hazards.

Redwood City General Plan

The General Plan contains the following goals, policies, and implementation programs regarding hazards and hazardous materials:

Built Environment Element

Goal BE-22: Achieve land use patterns and development approaches that incorporate sustainability principles.

Policy BE-22.3: Ensure that new development within San Carlos Airport airspace protection zones seeks input from the Federal Aviation Administration prior to approval.

Public Safety Element

Goal PS-8: Protect city residents, and businesses and employees from potential hazards associated with the use, storage, transport, and disposal of hazardous materials in and through Redwood City.

Policy PS-8.1: Establish policies to regulate and reduce hazardous waste within Redwood City that are consistent with the County’s Hazardous Waste Management Plan and other County regulatory programs.

Policy PS-8.2: Educate residents and businesses about household hazardous wastes, less toxic materials that can be used in place of toxic materials, and proper household hazardous waste disposal methods.

Policy PS-8.3: Work to ensure that land previously used as agriculture, commercial, and industrial is safe and contains no environmental hazards.

Policy PS-8.4: Encourage the use of green building practices to reduce potentially hazardous materials in construction materials.

Goal PS-10: Minimize risks of potential hazards in the vicinity of San Carlos Airport.

Policy PS-10.1: Work to achieve consistency between General Plan land use and related policies and the San Carlos Airport Comprehensive Land Use Plan, as is appropriate for Redwood City. Measures may include restrictions on permitted land uses and development criteria, including height restrictions.

Program PS-30: Hazardous Waste Ordinance. Adopt a Hazardous Waste Ordinance that is compatible with the County Hazardous Waste Management Plan.

Program PS-31: Hazardous Materials Buffer. Require a buffer zone between areas where significant quantities of hazardous materials are present and sensitive receptors, such as residences, hospitals and nursing/convalescent homes, hotels and lodging, schools, and day care centers.

Program PS-37: County Airport Land Use Plan. Refer all General Plan and Zoning Map amendments/updates, Precise Plans, and other amendments affecting property within Area B of the Airport Influence Area (AIA) Boundary for San Carlos Airport to the C/CAG Airport Land Use Commission for a determination of consistency with the County Airport Land Use Plan for the environs of San Carlos Airport.

Program PS-48: Hazardous Material Releases from Prior Land Uses. Establish development standards for new development and redevelopment in areas previously used for commercial, agricultural, or industrial uses to identify and abate hazardous material releases from prior land uses that have the potential to affect future property owners or users. A Phase I Environmental Site Assessment should be required where appropriate and environmental testing and/or remediation may be required based on the findings of the Phase I.

4.9.3 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, the Project would have if a significant impact if it would:

- A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- B. 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;
- C. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- D. 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, would it create a significant hazard to the public or the environment;
- E. For development within the Project area 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, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area;
- F. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- G. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.9.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

The Project includes revised implementation programs that would specifically avoid or reduce significant hazards and hazardous materials impacts (see section 4.20.4 of Chapter 20, Wildfire,

for proposed revised and new policies and implementation programs that would avoid or reduce significant wildfire impacts). The proposed revised policies and implementation programs are shown in underline, while revised implementation programs are shown in ~~strikeout~~.

~~[renumbered]~~ Program BE-365: Participate with Local, Regional, State, and Federal Agencies and Other Organizations.

- Consult with San Mateo County regarding site and building design, land use, and economic development opportunities on County-owned properties and areas within the Sphere of Influence.
- Consult with San Mateo County and C/CAG jurisdictions, and with State and federal agencies, regarding regional land use and transportation planning, including issues related to the San Carlos Airport.
- Consult with the Bay Conservation and Development Commission (BCDC) regarding new development within their jurisdiction. Promote consistency with the Bay Plan by approving conforming projects or seeking amendments to the Bay Plan.
- Consult with the Metropolitan Transportation Commission (MTC) regarding maritime issues affecting Redwood City within its regional transportation plan.

Program PS-44: Local Hazard Mitigation Plan. Continue to actively coordinate with San Mateo County on the regular update of the Multi-Jurisdictional Local Hazard Mitigation Plan and the implementation of the City's Action Plan it commits to in the Local Hazard Mitigation Plan, Volume II, annually review and, as necessary, update the Local Hazard Mitigation Plan. Review the Hazard Mitigation Plan in conjunction with the City's for consistency with the General Plan, Climate Action Plan, future Climate Adaptation Plan, and other resiliency planning and emergency response planning documents to ensure consistency of approach across all documents.

~~[renumbered]~~ Program PS-556: County Environmental Health Department Consultation. Consult with the County Environmental Health Department to regularly inspect businesses for compliance with their Hazardous Materials Management Plans.

~~[renumbered]~~ Program PS-567: Hazardous Waste Consultation. Consult with San Mateo County to:

- Sponsor household hazardous waste disposal programs for residents to bring pesticides, cleaning fluids, paint cans, and other common household toxics to a centralized location for proper disposal.
- Educate users about less toxic materials that can be used in place of hazardous materials.

~~[renumbered]~~ Program PS-578: Bay Area Air Quality Management District Asbestos Airborne Toxic Control Measure. Require conformance with Bay Area Air Quality Management District Asbestos Airborne Toxic Control Measure (CCR, Title 17, §93105) for all discretionary

projects and all projects requiring a grading permit that are located in areas likely to contain naturally occurring asbestos (serpentine or ultramafic rock).

4.9.5 Impacts and Mitigation Measures

This section describes potential impacts related to hazards and hazardous materials which could result from the implementation of the Project and recommends mitigation measures, as needed, to reduce significant impacts.

Transport, Use, and Disposal of Hazardous Material

Impact HAZMAT-1 – Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Analysis of Impacts

Implementation of the Housing Element Update component of the proposed Project would result in an increase in residential dwelling units within the Planning Area. Construction of future development under the Project would likely involve the use and disposal of chemical agents, solvents, paints, and other hazardous materials associated with construction activities. The amount of these chemicals present during construction would be limited, would be used and disposed in compliance with existing government regulations, and would not be considered a significant hazard. Typical best management practices (BMPs) to control hazardous materials during construction include proper labeling and storage, removal of materials once completed, and offsite vehicle maintenance.

Residential and mixed-use housing development do not cause or contribute substantially to potential hazards to the public or the environment because these uses do not involve the use, transport, or disposal of appreciable amounts of hazardous materials or wastes. Operational hazardous materials associated with new residential uses could include, for example, liquid chemical products (e.g., household cleaners), used motor oil, building maintenance supplies, paints and solvents, pesticides, or other similar materials. The limited quantity of such products would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

The existing Public Safety Element of the General Plan contains Goal PS-8, Policies PS-8.1 and PS-8.2, and Program PS-31 to assure future development would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The Project does not propose changing these goals, policies, and implementation programs.

Future mixed-use development within the Planning Area could involve the storage, use and disposal of potentially hazardous materials, including building maintenance supplies, paints and solvents, pesticides and herbicides for landscaping and pest control, vehicle maintenance products, and similar substances. The City would require all new development to follow applicable regulations and guidelines regarding the storage, handling and disposal of hazardous waste. In addition, all hazardous materials are required to be stored and handled according to manufacturer's directions and local, state, and federal law.

4.9 – Hazards and Hazardous Materials

Given the extensive existing federal, State, and local hazardous materials regulations already in place, the proposed Project would not create a significant hazard to the public or the environment from hazardous materials transport, storage, use, and disposal. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Hazardous Materials

Impact HAZMAT-2 – Would the Project 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?

Analysis of Impacts

Residential and mixed-use housing development do not cause or contribute substantially to potential hazards to the public or the environment because these uses do not involve the use, transport, or disposal of appreciable amounts of hazardous materials or wastes. As shown in Table 4.9-1, several hazardous materials releases have been reported within the Planning Area. Additionally, there may potentially be other unreported releases within the Planning Area or in areas adjacent to the Planning Area. It is possible that contaminants in soil or groundwater could expose future construction workers, residents, workers or other members of the public to potential hazards. However, the potential for soil contamination for any proposed new development would be addressed through compliance with all local, State, and federal regulations and laws pertaining to hazardous materials contamination and the continued application of existing General Plan Public Safety Element goals, policies, and implementation programs that address and resolve underground contamination, as explained below.

The existing Public Safety Element of the General Plan includes Goal PS-8, Policy PS-8.1, Policy PS-8.3, Program PS-31, Program PS-48, and Program PS-55 to ensure future development would not result in significant environmental impacts regarding accidents involving hazardous materials.

Demolition of existing structures in the Planning Area would involve removal and disposal of existing building materials. Some older buildings may contain hazardous airborne materials, such as asbestos-containing materials or lead-based paint. If not properly abated, these materials could negatively impact construction workers or members of the public. The Bay Area Air Quality Management District (BAAQMD) regulates the demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos. The BAAQMD is vested with authority to regulate airborne pollutants through both inspection and law enforcement and is to be notified 10 days in advance of any proposed demolition or abatement work. BAAQMD regulations must be followed when removing asbestos

or demolishing buildings. Existing General Plan Public Safety Element Program PS-57 would ensure development under the proposed Project complies with BAAQMD Asbestos Airborne Toxic Control Measure (CCR, Title 17, §93105) and avoids or minimizes potential impacts associated with accidental release of asbestos from demolition activities.

If contaminated soils are found during grading, work must be halted, and the appropriate regulatory agency or agencies must be contacted depending on the nature of the contamination. Each development project in the Planning Area would be required to comply with all applicable, existing local, State, and federal-mandated site assessment, remediation, removal, and disposal requirements for soil, surface water, and/or groundwater contamination, as described in section 4.9.2 Regulatory Framework. Typically, a contractor or the local Certified Unified Program Agency (CUPA) would assist in identifying any unknown materials, and if necessary, the DTSC would be consulted to identify and implement appropriate characterization and remediation procedures. The local CUPA for Redwood City is San Mateo County Health.

The implementation of the Project would not result in other reasonably foreseeable upset and accident conditions. With continued adherence to the requirements of the General Plan Public Safety Element and compliance with established local, State, and federal environmental site assessment procedures, potential impacts related to upset and accident conditions involving the release of hazardous materials into the environment would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Hazardous Emissions

Impact HAZMAT-3 – Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Analysis of Impacts

There are several schools within the Planning Area. New development under the Project is expected to be primarily residential, although it may also include commercial uses as part of mixed-use developments. None of these uses are expected to generate hazardous emission or involve the handling of hazardous or acutely hazardous materials, substances, or waste, even if they are located within one-quarter mile of existing or proposed schools.

Hazardous materials associated with construction of new uses would include vehicle fuels, paints, solvents, insulation and caulking materials, etc. Hazardous materials associated with the operation of new residential and commercial uses could include, for example, liquid chemical products (e.g., household cleaners), used motor oil, building maintenance supplies, paints and solvents, and pesticides. However, the limited quantity of such products would not generate

significant hazardous air emissions or involve the use of acutely hazardous materials that could pose a significant threat to the environment or human health.

The existing Public Safety Element of the General Plan includes Goal PS-8, Policy PS-8.1, Policy PS-8.3, Program PS-31, Program PS-48, and Program PS-55 to ensure future development would not result in significant environmental impacts regarding accidents involving hazardous materials, including near schools. The Project does not propose changing these goals, policies, and implementation programs.

New development within the Planning Area could use and dispose of chemical agents, solvents, paints, and other hazardous materials associated with construction activities. The amount of these chemicals present during construction would be limited; would comply with applicable local, State, and federal government regulations, including those listed in section 4.9.2 Regulatory Framework; and would not be considered a significant hazard. Specific to schools, State regulations on the siting of hazardous materials facilities limit their location in proximity to schools; conversely, CEQA (section 21151.8, School Site Acquisition or Construction) and other State regulations impose restrictions on where new schools can be constructed. In addition, individual discretionary development applications would be required by the City to undergo a project-specific CEQA review, which would include an evaluation of a project's potential impacts on any nearby schools. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Hazardous Material Sites

Impact HAZMAT-4 – Would the Project 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, would it create a significant hazard to the public or the environment?

Analysis of Impacts

Sites included on the list required by Government Code Section 65962.5, the Cortese List, include hazardous materials contamination that can be detrimental to human health and the environment. As shown in Table 4.9-1, there are several known “open case” contamination sites within the Planning Area that previously contained contamination requiring remediation.

As shown in Table 4.9-1, according to CalEPA, DTSC and SWRCB, there are four Cortese Sites, as defined in Government Code Section 65962.5 listed in the City of Redwood City (CalEPA 2022, DTSC 2022, SWRCB 2022). Future development under the Project will also be required to comply with applicable federal, State, and local laws and regulations regarding hazardous materials depending on the type of use and materials to be used.

At this time, there are no known sites on the Cortese list that would be housing sites under the proposed Project. In addition, future development would investigate this possibility as part of the project-specific CEQA review process. Regarding significant environmental hazards, the buffer zones required by adopted General Plan Program PS-31 would protect sensitive receptors from operations, accidents, or spills at hazardous materials facilities. In addition, the adopted Public Safety Element of the General Plan includes Goal PS-8, Policy PS-8.1, Policy PS-8.2, Policy PS-8.3, Program PS-31, and Program PS-48 to ensure future development would not result in significant environmental impacts associated with hazardous materials sites in the Planning Area. The Project does not propose changing these goals, policies, and implementation programs.

If future redevelopment is proposed on any of these contamination sites, potential contamination (if not already remediated) would be addressed through the City's development review requirements in accordance with the General Plan Public Safety Element policies and implementation programs and in compliance with applicable State and federal regulations, including Environmental Site Assessment (ESA) procedures. This impact is considered ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Airports

Impact HAZMAT-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, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

Analysis of Impacts

The San Carlos Airport is located just northwest of the Planning Area. In 2015, the City/County Association of Governments of San Mateo County (C/CAG) (the Airport Land Use Commission for San Mateo County) adopted the *Comprehensive Airport Land Use Compatibility for the Environs of San Carlos Airport* (ALUCP) to promote compatibility between the San Carlos Airport and its environs (C/CAG 2015).

The western portion of the Planning Area, as shown in Figure 4.9-1, is located within the Area B of the Airport Influence Area (AIA) for San Carlos Airport. Per the ALUCP, proposed development within Area B of the AIA, the project referral area, and that would include one or more of the following, would require review for consistency with the ALUCP (C/CAG 2015):

- A. An increase in the proposed residential density.
- B. The addition of a land use that is incompatible under this ALUCP.

- C. The height of a structure is to be increased and would create a hazard or obstruction as determined by the FAA.
- D. The addition of a characteristic that would create a hazard to air navigation.

The Project would potentially place new residential development in Area B of the AIA (see Figure 3-5 in Section 3.0 Project Description and Figure 4.9-1 above). In the event that such a development would be located in Area B of the AIA, the project would undergo a determination by the C/CAG for consistency with the relevant ALUCP policies. The C/CAG consistency review would ensure future development projects located within Area B would not result in a safety hazard or excessive noise for residents of the future housing development.

In addition, Federal Aviation Regulation (FAR) Part 77, Section 77.9 requires notice to the Federal Aviation Administration (FAA) by developers proposing structures taller than the indicated elevations (see Figure 4.9-2). Applicable development must file Form 7460-1 with the FAA at least 30 days before the proposed construction. Applicable development in the Planning Area that results from the proposed Project would be subject to compliance with FAA notification requirements. Notification to the FAA would allow the FAA to identify potential aeronautical hazards in advance and prevent or minimize potential adverse impacts to the safe and efficient use of navigable airspace.

The existing Built Environment (Urban Form and Land Use) and Public Safety Element of the General Plan contain Policy BE-22.3, Program BE-36, Goal-PS-10, Policy PS-10.1, and Program PS-37 to assure future development would be consistent with the ALUCP and FAA Part 77 requirements through the C/CAG. The Project does not propose changing these goals, policies, and implementation programs.

Potential airport safety hazards and noise concerns associated with future development proposed in the western portion of the Planning Area, within the Area B of the AIA or within the area subject to FAA notification requirements, would be addressed through standard City development review processes that include conveying applicable development proposals to the C/CAG for consistency review with the ALUCP. The Housing Element Update identifies several potential housing sites within Area B that would allow housing by right for housing development projects in which 20 percent of the units are affordable to lower-income households (see “Sites Subject to AB 1397” in Figure H3-2 of the Housing Element Update). While these sites would allow housing by right (i.e., no review is required under the California Environmental Quality Act [CEQA], unless a subdivision is required, and the project can only be reviewed using 'objective' design standards), housing allowed by right would still be subject to referral through the City’s building permit and design review processes and, as applicable, would be subject to FAA regulations. Typically, referral of applicable development projects to the C/CAG would be included in the conditions of approval (COAs) during the City’s development review requirements. These COAs would be in accordance with the General Plan Built Environment and Public Safety Element policies and in compliance with applicable federal regulations regarding airports. With regulatory compliance, the Project would not result in a safety hazard or excessive noise for people residing or working in the Project area. This impact is considered ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Adopted Response or Evacuation Plans

Impact HAZMAT-6 – Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Analysis of Impacts

Please see Chapter 4.20, Wildfire for a discussion of potential wildfire impacts and evacuation.

All major public streets in Redwood City serve as principal evacuation routes, including Edgewood Drive, Whipple Avenue, Jefferson Avenue, Woodside Drive, Alameda de las Pulgas, Fernside Street, El Camino Real, Veterans Boulevard, Hudson Street, Farm Hill Boulevard, Marine Parkway, and Shearwater Parkway (see Figure 4.20-3 in Chapter 4.20, Wildfire, which shows evacuation routes in the Planning Area). These principal routes are well-maintained and would support an evacuation function; however, in any evacuation, the exact emergency routes used would depend on a number of variables, including the type, scope, and location of the incident.

The 2010 General Plan contains adopted policies and implementation programs that would ensure adequate emergency services in the Planning Area. These policies and programs include Policy PS-9.2, Policy PS-9.3, Program PS-33, Program PS-34, Program PS-35, Program PS-36, and Program PS-42. See section 4.20.2 in Chapter 4.20, Wildfire for the full text of these adopted policies and implementation programs.

The Public Safety Element Update component of the Project also proposes new and revised policies and implementation programs that would continue and improve protection of residents and properties through implementation of emergency response plans and requirements for developments to plan for evacuation scenarios and ensure adequate emergency access. The applicable policies and implementation programs from the Public Safety Element Update related to emergency response or evacuation plans are provided below. See section 4.20.4 in Chapter 4.20, Wildfire for the full text of each policy or implementation program.

Public Safety Element

Program PS-13.1: New and Re-development Siting Requirements

Program PS-13.4: Statewide Fire Protection Standards.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.12: Emergency Preparedness

Program PS-32: Emergency Operations Plan

Program PS-44: Local Hazard Mitigation Plan

Program PS-60: Inter-Agency Emergency Preparedness/Mutual Aid

While it is possible there may be temporary and limited circulation changes that may be required during discrete periods of time associated with specific construction projects, these changes would be temporary and would still allow for evacuation in the event of an emergency. As specific projects are proposed within the Planning Area, potential construction period emergency access impacts would be evaluated and avoided as part of the regular project review and/or the CEQA compliance process for future project-specific proposals. While an increase in population in the Planning Area could increase evacuation times, the proposed updated Public Safety Element policies and implementation programs would ensure adequate emergency response and evacuation procedures are planned for and maintained on a development-by-development basis and Planning Area-wide. Therefore, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact is considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Wildland Fires

Impact HAZMAT-7 – Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Analysis of Impacts

See Chapter 4.20, Wildfire, for detailed discussion of the Project's potential impacts related to wildfire hazards. The foothill neighborhoods west of Alameda de las Pulgas are designated a Very High Fire Hazard Severity Zone (VHFSZ) (Figure 4.20-1). Development within this zone is subject to the City or County defensible space and fuel modification requirements. The Redwood City Fire Department provides firefighting services to the Local Responsibility Area (LRA), and the Redwood City Fire Department's Fire Prevention Bureau reviews and approves development plans for fire safety. The San Mateo County Fire Department provides firefighting services to the State Responsibility Area (SRA), roughly encompassing unincorporated Emerald Hills¹ and part

¹ It should be noted that while Emerald Hills is designated State Responsibility Area (SRA) and the San Mateo County Fire Department/CAL FIRE provides firefighting services in the SRA, a portion of Emerald Hills falls under the jurisdiction of the Woodside Fire Protection District (San Mateo County Fire Department 2022b).

of Edgewood County Park and Natural Preserve (Edgewood County Park) within the Planning Area.

New construction within the VHFHSZ is required to comply with California Building Code Chapter 7A, including requirements for fire retardant or ignition resistant construction materials at roofs, eaves, vents, exterior walls, exterior windows and doors, decks, and areas below decks. California Government Code §51182 also requires buildings within these areas to provide defensible space. Defensible space must be maintained up to 100 feet (or the property line, whichever is less) from the building. The Redwood City Building Code also requires fire retardant roofing (§R905.1.3) and fire sprinklers (§903.2).

Further, the Public Safety Element update component of the Project contains existing and new policies and implementation programs that would avoid or minimize threats to future development due to wildfire hazards. See Section 4.20.4 in Chapter 4.20, Wildfire, for these policies and implementation programs.

With continued implementation of City Municipal Code requirements related to fire protection and the implementation of the proposed policies and implementation programs of the updated Public Safety Element, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.9.6 References

California Department of Forestry and Fire Protection (CAL FIRE). Very High Fire Hazard Severity Zone Viewer. 2022. Accessed August 22, 2022 at <https://egis.fire.ca.gov/FHSZ/>.

California Environmental Protection Agency (CalEPA). Cortese List Data Resources Accessed August 25, 2022 at <https://calepa.ca.gov/sitecleanup/corteselist/>.

City/County Association of Governments of San Mateo County (C/CAG). 2015. Comprehensive Airport Land Use Compatibility for the Environs of San Carlos Airport. October 2015.

Department of Toxic Substances Control (DTSC). *EnviroStor*. Accessed August 25, 2022 at https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29.

State Water Resources Control Board (SWRCB). GeoTracker. Accessed August 25, 2022 at https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_nam

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e=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&oilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search.

U.S. Environmental Protection Agency (U.S. EPA). Superfund Enterprise Management System Database. 2020. Accessed August 25, 2022 at [Superfund Site Profile | Superfund Site Information | US EPA](#).

4.10 Hydrology and Water Quality

This section describes the existing hydrology and water quality setting, analyzes potential hydrology impacts, and identifies mitigation measures, if required.

4.10.1 *Environmental Setting*

Watershed and Surface Waters

The Redwood Creek system is the largest watershed in the Planning Area. The watershed, approximately 11.8 square miles in area, includes portions of Redwood City, the Town of Woodside, and land in unincorporated San Mateo County. The major tributary of Redwood Creek within the Planning Area is known as Arroyo Ojo de Agua. Other branches include the Emerald Branch, the Stulsaft Branch, Kensington, and the Jefferson Branch. Redwood Creek originates in an area immediately west of I-280 and flows northerly towards San Francisco Bay.

Within the Planning Area, water flows from the upper Emerald Lake area and drains toward San Francisco Bay. Upstream portions of the Redwood Creek system have been dammed to form small lakes, including Lower and Upper Emerald Lakes. Although these lakes are manmade, they provide freshwater marsh habitat.

Groundwater

Redwood City overlies the southern portion of the San Mateo Plain groundwater subbasin of the Santa Clara Valley Groundwater Basin (City of Redwood City 2021). The subbasin is bounded at the base by relatively impermeable bedrock, by the foothills of the Santa Cruz Mountains to the west, and the bedrock outcrop of Coyote Point to the north. The San Mateo Plain subbasin spans a 75 square mile area roughly from the City of San Mateo southerly to San Francisquito Creek (which forms the boundary between the cities of Menlo Park and Palo Alto). The Santa Cruz Mountains form the western boundary; the eastern boundary is San Francisco Bay.

The subbasin contains both shallow and deep aquifer systems that are separated by a low-permeability clay aquitard. Areas near the foothills, where a clay aquitard is not present, are the most likely recharge zones for the deeper alluvial aquifers that are present in the subbasin. Closer to the Bay margins, the subbasin is more clearly divided into the upper and lower aquifer systems. The majority of the groundwater production wells in the subbasin appear to be completely in the deeper aquifer. The main sources of natural recharge to the local groundwater aquifers include infiltration of water along the streambeds in the upland areas (e.g., San Francisquito Creek, Cordilleras Creek, Redwood Creek, and Arroyo Ojo de Agua) and to a lesser extent, percolation of precipitation and return flows from applied irrigation water.

According to the Regional Water Quality Control Board (RWQCB), saltwater intrusion has occurred to groundwater within the San Mateo Plain subbasin. The California State Department of Water Resources (DWR) found that groundwater quality in the sub-basin contains high concentrations of sodium; samples from wells in the area also found concentrations of

nitrates/nitrogen in excess of maximum contaminant levels established by the California Department of Health Services and the United States Environmental Protection Agency (U.S. EPA).

The subbasin is filled with alluvial fan deposits formed by tributaries to San Francisco Bay that drain across the basin and toward the center of the Bay. These alluvial fan deposits are interbedded with thick clay aquitards or confining layers and comprise the main water bearing formations within the subbasin. The major water bearing formation of the subbasin is the Quaternary alluvium, from which all larger yielding wells acquire their water. The Santa Clara Formation underlies the Quaternary alluvium and is the other water bearing formation of the subbasin. In general, the groundwater system is unconfined in the higher elevations, and confined or semiconfined at lower elevations closer to San Francisco Bay. Groundwater flow in the subbasin is generally from west-southwest to east-northeast, from the edge of the Santa Cruz Mountains to San Francisco Bay. Both the southern and eastern edges of the subbasin are political boundaries that are roughly coincident with County lines, rather than physical hydrogeologic barriers to groundwater flow. Depending upon temporally varying streamflow, recharge, and pumping conditions, groundwater flow likely occurs in variable directions across each boundary. Natural recharge occurs by infiltration of water from streams that enter the valley from the upland areas within the drainage basin, including San Francisquito Creek, San Mateo Creek, and other smaller creeks, and by percolation of precipitation that falls directly on the land surface. Additional recharge occurs as a result of infiltration of applied irrigation water. Subbasin outflows include limited municipal and private well pumping and groundwater outflows across subbasin boundaries.

Flooding and Dam Inundation

The National Flood Insurance Program (NFIP) branch of the Federal Emergency Management Agency (FEMA) maintains maps of floodways and floodplains for the United States. FEMA maps these areas on Flood Insurance Rate Maps or FIRMs. A typical FIRM will show specific flood hazard areas, flood risk zones, and floodplains at a local level of detail. In some identified flood hazard zones, certain types of construction and/or uses are prohibited or are required to carry flood insurance. Cities and other jurisdictions use FIRMs to establish zoning districts, buffers, or other regulatory requirements intended to protect people and property from flood damage and minimize the cost of physical flood control mechanisms.

The latest official flood maps for the Planning Area date from 2012 and 2019 depending on the specific location within the Planning Area. A review of the current FIRMs shows that the northern portion of the Planning Area contains areas with a propensity for flooding. These areas are primarily near San Francisco Bay. Inland portions of the Planning Area are at less risk of flooding, though inland areas surrounding Redwood Creek are located in the 500-year floodplain, meaning there is a 0.2 percent chance each year of flooding in those areas.

Land near the Port of Redwood City, fronting Westpoint Slough and the area within the Centennial neighborhood along the Cordilleras Creek channel, are located within the 100-year floodplain (which means that there is a 1 percent chance each year that the area will experience flooding conditions). A portion of the Redwood Shores neighborhood, portions of Friendly Acres along the Broadway corridor east of Woodside Road, areas within the Centennial neighborhood along the Cordilleras Creek channel, and the central portion of the Planning Area immediately adjacent to

the Redwood Creek tributaries are located either within the 100-year or 500-year floodplain. Most of the Redwood Shores neighborhood is designated as an area with reduced flood risk due to levees (Zone X).

The central portion of the Planning Area is located within the Emerald Lake dam inundation area. The Emerald Lake dam inundation area runs in an approximately north-south direction, between Woodside Road and Farm Hill Boulevard/Jefferson Avenue. The dam inundation area extends through the center of the Planning Area to the southern portion of Downtown.

Sea Level Rise

Climate changes could potentially affect: the amount of snowfall, rainfall and snowpack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for saltwater intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Sea level has risen eight to nine inches (21–24 centimeters) since 1880. In 2020, global sea level set a new record high of 91.3 mm (3.6 inches) above 1993 levels. The rate of sea level rise is accelerating; it has more than doubled from 0.06 inches (1.4 millimeters) per year throughout most of the twentieth century to 0.14 inches (3.6 millimeters) per year from 2006–2015. In many locations along the U.S. coastline, high-tide flooding is now 300 percent to more than 900 percent more frequent than it was 50 years ago. Sea level could rise as much as 8.2 feet (2.5 meters) above 2000 levels by 2100. Rising seas could impact transportation infrastructure, utilities, and regional industries.

The San Francisco Bay Area is one of the top hotspots for sea level rise in the nation. The economic value of San Mateo County property at risk from sea level rise exceeds that of any other county in the Bay Area. The assessed value of parcels in Redwood City exposed to near-term (present-day) flooding exceeds \$1 billion, and the assessed value of parcels exposed to erosion and flooding in the long term (50 to 100 years) totals roughly \$39.1 billion. When population projections are taken into account, San Mateo County is one of six counties with more than 100,000 people in the nation (and the only one on the West Coast) that will be affected by three feet of sea-level rise.

Stormwater Runoff

Existing sources of pollutants discharging into surface waters in the Planning Area may include both point and nonpoint discharges. A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a water body from such sources as industrial facilities or wastewater treatment plants. These discharges are subject to prohibitions by regulatory agencies, water quality requirements, periodic monitoring, annual reporting, and other requirements designed to protect the overall water quality of the creeks and eventually San Francisco Bay. Nonpoint pollutant source are sources that do not have a single, identifiable discharge point but are rather a combination of many sources. A nonpoint source can be stormwater runoff from land that contains, for example, petroleum from parking lots, pesticides from farming operations, or sediment from soil erosion. Pollutants in Redwood Creek eventually flow into the San Francisco Bay.

Water Quality

Water carried through the City's water distribution system originates in the Sierra Nevada and is delivered from the SFPUC's Hetch Hetchy system. The City, in coordination with the SFPUC, routinely monitors water quality within the water distribution system to ensure that water quality meets primary and secondary drinking water standards. The City has an approved bacteriological sample plan, dated August 2000, to allow for sampling stations located at key points within the water distribution system. The City also collects water samples for residual disinfectant materials, trihalomethanes, asbestos, lead, and copper, as well as testing for general color, odor, turbidity, and pH measurements. The City has not exceeded water quality action levels since 1993.

4.10.2 Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges (known as "point sources") into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff, the principal nonpoint source. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Under the watershed approach, equal emphasis is placed on protecting healthy waters and restoring impaired ones.

Major CWA programs include water quality standards, anti-degradation policy, waterbody monitoring and assessment, total maximum daily loads (TMDLs), the National Pollutant Discharge Elimination System (NPDES) permit program for point sources, Section 319 program for nonpoint sources, Section 404 program regulating filling of wetlands and other waters, Section 401 state water quality certification, and the state revolving loan fund (SRF).

Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) creates maps classifying levels of flood risk or flood zones for designated areas. The maps are called Flood Insurance Rate Maps (FIRMs) and are utilized to determine the need and rate of flood insurance. Flood zones are determined based on historical data on the likelihood of flood inundation. The 100-year flood zone, also classified as Zones A, AO and AE, is the area of flooding expected to occur every 100 years.

NPDES Program

The National Pollutant Discharge Elimination System (NPDES) program requires permitting for activities that discharge pollutants into waters of the United States. This includes discharges from municipal, industrial, and construction sources. Generally, these permits are issued and monitored under the oversight of the State Water Resources Control Board (SWRCB) and

administered by each regional water quality control board. A brief discussion of these permit types is presented below:

Municipal Permits. Municipal separate storm sewer systems (MS4) are issued permits based on the size of the municipality. MS4 permit requirements include reduction of pollutant discharges to the ‘maximum extent practicable’ and protection of water quality. Requirements also include identification of major outfalls and pollutant loads and control of discharges from new development and redevelopment. To address these objectives, municipalities are required to prepare stormwater management plans. Although the NPDES program does not regulate nonpoint sources of pollution, the San Francisco Bay RWQCB has other programs in place to address nonpoint sources.

Industrial Permits: The SWRCB issues the Industrial General Permit that regulates discharges from 10 broad categories of industrial activities. The permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring program to implement water quality objectives through use of the best available technology (BAT) economically achievable and best conventional pollutant control technology (BCT).

Construction Permits: Construction activities that disturb one acre or more (whether a single project or part of a larger development) are required to obtain coverage under the State’s General Permit for Dischargers of Storm Water Associated with Construction Activity. The activities covered under the Construction General Permit include clearing, grading, and other disturbances. The permit requires preparation of a SWPPP and implementation of Best Management Practices (BMPs) with a monitoring program.

State

Porter-Cologne Act (California)

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne) the SWRCB has authority over State water rights and water quality policy. Porter-Cologne also established nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level. RWQCBs engage in a number of water quality functions in their respective regions.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high and medium priority groundwater basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline. SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably and requires those GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California.

NPDES Regulations

The Federal Clean Water Act allows individual states to operate their own NPDES programs provided such programs meet minimum Federal requirements. The San Francisco Bay Regional Water Quality Control Board issues the municipal stormwater National Pollutant Discharge Elimination System permit, MS4, which encompasses the City of Redwood City.

The objective of Order No. R2-2015-0049 (updated by Order No. R2-2022-0018) is to protect the beneficial uses of receiving waters in the San Francisco Bay Region. To meet this objective, the Order requires that the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) include Best Management Practices (BMPs) that would be implemented to reduce the discharge of pollutants in stormwater to the maximum extent practicable. Further, Permittees are to assure that stormwater discharges from the MS4 shall neither cause nor contribute to the exceedance of water quality, standards and objectives nor create conditions of nuisance in the receiving waters, and that the discharge of non-storm water to the MS4 has been effectively prohibited.

California Water Plan

Required by the California Water Code Section 10005(a), the California Water Plan, prepared by the DWR, is the state government's strategic plan for managing and developing water resources statewide and provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The California Water Plan, which is updated every five years, presents basic data and information on California's water resources, including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The California Water Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the state's water needs.

Colbey-Alquist Floodplain Management Act

The Colbey-Alquist Floodplain Management Act encourages local governments to plan, adopt and enforce land use regulations for floodplain management, in order to protect people and property from flooding hazards. This act also identifies requirements which jurisdictions must meet in order to receive state financial assistance for flood control.

State Resolution No. W-4976

In recent years, the State of California has been experiencing dry weather conditions due to less rainfall, causing a statewide drought emergency. In an effort to promote water conservation effort, Resolution No. W-4976 was adopted by the California Public Utilities Commission on February 27, 2014 to establish procedures for water conservation measures in order to ensure a reduction in consumption. Since many water utility agencies or companies secure their water supply from multiple sources, including water wholesalers, surface water and/or groundwater, the adoption of this mandate has affected how water utility districts plan their service distribution while encountering various levels of water supply adjustments within each service area.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen Code), Part 11 of the California Building Standards Code (Title 24), is designed to improve public health, safety, and general welfare by utilizing design and construction methods that reduce the negative environmental impact of development and encourage sustainable construction practices. The CALGreen Code provides mandatory direction to developers for all new construction and renovations of residential and non-residential structures with regard to all aspects of design and construction, including, but not limited to, site drainage design, stormwater management, and water use efficiency. Required measures are accompanied by a set of voluntary standards designed to encourage developers and cities to aim for a higher standard of development.

Low Impact Development

The State of California adopted sustainability as a core value for all California Water Board activities and programs on January 20, 2005. Low Impact Development (LID) practices benefit water supply and contribute to water quality protection by taking a different approach to development and using site design and storm water management to maintain the site's predevelopment runoff rates and volumes. The amount of impervious surface, infiltration, water quality, and infrastructure costs can all be addressed by LID techniques, tools, and materials. LID practices include bioretention facilities or rain gardens, grass swales and channels, vegetated rooftops, rain barrels, cisterns, vegetated filter strips, and permeable pavements.

Regional

San Francisco Bay Basin Water Quality Control Plan

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The San Francisco Bay RWQCB is responsible for the protection of the beneficial uses of waters within the coastal watersheds of the San Francisco Bay Region. The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247). The Basin Plan contains water quality regulations adopted by the San Francisco Bay RWQCB and approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. It also contains statewide regulations adopted by the State Water Board and other state agencies that refer to activities regulated by the Water Board.

The Porter-Cologne Act also provides the RWQCBs with authority to include within their basin plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

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More specifically, the Basin Plan includes:

- A statement of beneficial water uses that the Water Board will protect;
- The water quality objectives needed to protect the designated beneficial water uses;
- The strategies and time schedules for achieving the water quality objectives.

The Basin Plan is continually being updated to include amendments related to implementation of TMDLs of potential pollutants or water quality stressors, revisions of programs and policies within the San Francisco Bay RWQCB region, and changes to beneficial use designations and associated water quality objectives.

Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs one acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and to keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

Local

Redwood City General Plan

The City's adopted General Plan contains the following goals and policies that address hydrology and water quality.

Natural Resources Element

Goal NR-5: Protect, restore, and maintain creeks, sloughs, and streams to ensure adequate water flow, prevent erosion, provide for viable riparian plant and wildlife habitat and, where appropriate, allow for recreation opportunities.

Policy NR-5.1: Restore, maintain, and enhance Redwood City's creeks, streams, and sloughs to preserve and protect riparian and wetland plants, wildlife and associated habitats, and where feasible, incorporate public access.

Policy NR-5.2: Limit construction activities to protect water quality in creeks and streams.

Policy NR-5.3: Except for floating home communities, marinas, and the infrastructure necessary for the communities and marinas, prohibit building and development activities to

establish a creek buffer zone, based on the site and floodplain characteristics and/or where sensitive species, communities, or habitats occur within the creek or 100-year floodplain, unless construction methods or other methods can substantially minimize damage from potential flooding.

Policy NR-5.4: In conjunction with new development located along existing creeks and streams and where appropriate, incorporate daylighting for culverted portions or other bank naturalizing approaches for channeled sections as a means of creek and stream restoration.

Policy NR-5.5: Except for floating home communities, marinas, and infrastructure necessary for the communities and marinas, regulate, and perhaps restrict, new development, grading, fills, and other land disturbances located immediately adjacent to a creek, stream, or in a 100-year floodplain, unless construction methods or other methods to minimize potential damage from flooding are implemented.

Goal NR-6: Preserve and enhance the baylands, natural wetlands, and ecosystem to assist with improved air quality and carbon dioxide sequestration.

Policy NR-6.5: Take steps to reduce urban runoff into creeks and the Bay.

Goal NR-7: Reduce pollution from stormwater runoff in our creeks and the San Francisco Bay.

Policy NR-7.1: Support appropriate stormwater pollution mitigation measures.

Policy NR-7.2: Encourage the use of site and landscape designs that minimize surface runoff and retain or detain stormwater runoff, minimizing volume and pollutant concentrations.

Policy NR-7.3: Promote continued maintenance, restoration, and daylighting of creeks in Redwood City through ecologically enhancing methods and any future enhancement ordinance.

Program NR-25: Creek Improvements. Wherever a new development or redevelopment project occurs on property containing or adjacent to an existing creek, require the project developer to improve and enhance the portion of the creek on or adjacent to the property, including daylighting and creek restoration wherever feasible. Permitted uses within creek buffer zones should be limited to habitat restoration, native riparian plantings, appropriate erosion control, trails, and flood control. Consider implementing a land banking system for critical open space areas along creek corridors.

Program NR-26: Creek Enhancement Ordinance. To minimize unfiltered stormwater runoff, reduce flooding risks, and preserve creek areas for natural restoration, establish a Creek Enhancement Ordinance that will allow the City to:

- Enforce protection of reasonable setback areas along existing creeks and streams from encroachment by buildings, pavement, or other impervious surfaces, and other inappropriate uses.
- Create adequate room for maintenance and potential public recreational use.

Program NR-27: Creek Property Owner Incentives. Consider offering incentives to property owners along creeks to correct and/or improve creek banks. Incentives may include rebates, classes/seminars, technical assistance, among others.

Program NR-28: NPDES. Continue to comply with all provisions of the National Pollutant Discharge and Elimination System (NPDES) permit, and support regional efforts by the San Francisco Bay Regional Water Quality Control Board (RWQCB) to improve and protect water quality.

Program NR-30: SMCWPPP. Implement the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) performance standards in the protection of creeks, streams, and watersheds.

Program NR-31: Water Quality Improvement. Require the integration of water quality protection/improvement techniques (e.g., use of vegetated swales or landscaping for water drainage along streets and for expansive parking lots) for new development. As feasible, incorporate water quality techniques when completing street improvements.

Program NR-34: Stormwater Runoff Education. Conduct outreach and education programs to residents, businesses, and industries in partnership with San Mateo Countywide Water Pollution Prevention Program to minimize the discharge of pollutants to the storm drain system.

Program NR-38: Watershed Multi-Jurisdictional Consultation and Pollution Prevention. Pursue consultation with jurisdictions that share watersheds with Redwood City to limit pollution in stormwater runoff and contribute to improvements that limit pollution entering the Bay and prevent flooding.

Goal NR-9: Maintain, enhance, and increase the number of trees on both public and private property to provide the maximum benefits of improved air quality, compensate for carbon dioxide production, reduce stormwater runoff, and mitigate the urban heat island effect.

Public Safety Element

Goal PS-7: Provide adequate and appropriately-designed storm drainage and flood control facilities to meet current and future needs and minimize the risk of flooding.

Policy PS-7.1: Avoid or minimize the risks of flooding to new development. Carefully evaluate whether new development should be located in flood hazard zones, and identify construction methods or other methods to minimize damage if new development is located in flood hazard zones.

Policy PS-7.2: Improve the drainage system's level of service to minimize storm flooding.

Policy PS-7.3: Strive to maintain the structural and operational integrity of essential public facilities during flooding. Locate, when feasible, new essential public facilities outside of flood hazard zones; identify construction methods or other methods to minimize damage if these

facilities are located in flood hazard zones. Essential public facilities include City government operations facilities, police and fire facilities, and hospitals.

Policy PS-7.4: Prioritize improvements to Redwood City’s storm drain system in areas that are prone to flooding. Encourage the use of preventive and low-impact measures as well as maintaining, upgrading, and constructing new flood prevention infrastructure to reduce the risk of flooding.

Policy PS-7.5: Consult with public agencies responsible for flood protection, including the U.S. Army Corps of Engineers, FEMA, and the California Department of Water Resources to maintain the most current flood hazard and floodplain information and use it as a basis for project review of flood protection systems such as levees and to guide development in accordance with federal, State, and local standards.

Policy PS-7.6: Minimize impervious surfaces to reduce stormwater runoff and increase flood protection.

Policy PS-7.7: Consult with “up stream” jurisdictions to:

- Minimize the runoff from these areas into Redwood City’s drainage system. Work with the jurisdictions located within the Redwood City watershed area, including San Carlos, Woodside, Menlo Park, Atherton, and San Mateo County.
- Pursue policies and measures to minimize runoff and reduce flooding while sharing the costs of major capital improvements.

Policy PS-7.8: Address flooding potential as a result of sea level rise.

Program PS-27: New Development Protected from Flooding. Require new development to be designed to provide protection from potential impacts of flooding resulting from significant flood events, consistent with evolving State and federal guidelines and as directed by the City Engineer, and to consider possible sea level rises.

Program PS-28: Stormwater System Maintenance and Upgrade Funding. As appropriate, allocate increased funding in Redwood City’s Capital Improvement Program to upgrade and/or replace stormwater drainage facilities.

Program PS-29: Update Flooding Information and Maps. As new and updated flooding information is provided by FEMA and other regional agencies, update the maps and information in the General Plan and maintained by the City to reflect current conditions.

Program PS-41: Stormwater and Creek Protection. Adopt a Creek Enhancement Ordinance. Address the following in the ordinance: flood control issues, biological resource opportunities, aesthetics, recreational/trail opportunities, public safety issues, property owners’ responsibilities to correct/improve creek banks (including offering incentives such as rebates, classes/seminars, technical assistance, etc.).

Program PS-43: Storm Drainage Facility Master Plan. Develop a Storm Drainage Master Plan to address flooding hazards and storm drainage facility needs. The Storm Drainage Master Plan should seek to balance the two primary functions of creeks: flood control and riparian habitat.

Program PS-46: Protect Essential Public Facilities from Flooding. Assess the level of impact on existing public facilities if flooding were to occur. Develop strategies to minimize impacts and provide continued operation of essential public facilities.

Program PS-49: Levees Upgraded to FEMA Standards. Upgrade existing levees in accordance with FEMA standards and FEMA direction to protect residential and commercial areas against 100-year flood hazards and sea level rise.

Program PS-50: Implement Strategy to Address Flooding (2000). Implement the recommendations in the Strategy to Address Flooding Problems in Friendly Acres/East Bayshore and Centennial neighborhoods. Upgrade the Fifth Avenue Pump Station to increase stormwater capacity in the Friendly Acres neighborhood. Raise the levee of the Bayfront Canal to increase the canal's capacity to store and convey stormwater. Complete improvements to provide a 30- year storm level of flood protection.

Program PS-52: Creekside Property Owner Education. Educate creekside property owners in low-cost, ecologically enhancing methods to maintain and improve creek bank stability, habitat restoration, and prevent bank erosion.

Program BE-53: Interagency Stormwater Drainage Consultation. Meet and consult with San Mateo County and surrounding jurisdictions to ensure that the other jurisdictions assume responsibility for reducing stormwater flow into Redwood City's drainage system and improve the drainage in their low-lying areas. Include the development community in these discussions to help assess how to best improve potential flooding in low-lying areas.

Program BE-54: Flooding Consultation. Consult with public agencies that have responsibility for flood protection regarding data, flood hazard zones, and emergency response.

Program PS-58: Watershed Multi-Jurisdictional Consultation. Pursue consultation with jurisdictions that share watersheds with Redwood City to limit stormwater runoff volume and contribute to flood-control improvements.

Program PS-59: Flood Insurance Rate Map Revisions. Initiate flood insurance rate map revisions for city projects, when appropriate.

Redwood City Municipal Code Chapter 27A

Chapter 27A (Stormwater Management and Discharge Control Program) of the City's Municipal Code addresses stormwater quality and runoff pollution control measures. The intent of Chapter 27A is to protect and enhance the water quality of watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Federal Water Pollution Control Act, as amended, commonly known as the Clean Water Act (33 USC section 1251 et seq.).

Redwood City Green Infrastructure Plan

Redwood City's Green Infrastructure (GI) Plan (2019) was developed to satisfy a San Francisco Bay Regional Water Quality Control Board's Municipal Regional Permit (MRP) Provision C.3.j.i, which requires permittees to develop a GI Plan that demonstrates how permittees will gradually shift from traditional "gray" storm drain infrastructure—which channels polluted runoff directly into receiving waters without treatment—to a more resilient and sustainable storm drain system comprised of "green" infrastructure, which captures, stores and treats stormwater. The MRP also requires that GI Plans be collectively designed to achieve specific reductions in mercury and PCBs (polychlorinated biphenyls) within specific time horizons. As required by Provisions C.3.a. through C.3.1 in the MRP, "Low Impact Development" practices are currently implemented on land development projects in the City. Specific methods and design criteria are spelled out in the San Mateo Clean Water Program's (SMCWP) Stormwater C.3 Guidebook, which the City of Redwood City has referenced in Ordinance No. 2269, amending Chapter 27A of the Redwood City Municipal Code. The GI Plan details how similar methods will be incorporated to retrofit existing storm drainage infrastructure using green infrastructure facilities constructed on public and private parcels and within the public right-of-way.

Redwood City Drainage Guidelines for Residential and Commercial Developments

Redwood City's Engineering Division guide stormwater detention and treatment for residential and commercial development in the City. The Drainage Guidelines for Residential Developments contain general guidelines, design criteria, and sample lot drainage calculations for stormwater runoff control, and design guide sheets for lot drainage infrastructure. The Drainage Guidelines for Commercial Developments contain general requirements, stormwater detention calculations, and stormwater treatment requirements for stormwater control and treatment for commercial development. The Engineering Division uses these guidelines during procedural review of individual development project proposals to maintain post-development storm water runoff to pre-development runoff conditions, especially when existing drainage flows onto neighboring properties (residential developments), and ensure drainage design is to maintain or reduce the pre-development runoff rate from a site to the City's storm drain system (commercial developments).

Redwood City Municipal Code Chapter 41

Chapter 41 (Floodplain Management) of the City's Municipal Code addresses floodplain management in the City. The intent of the Chapter is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- A. Protect human life and health;
- B. Minimize the expenditure of public money for costly flood-control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. Minimize prolonged business interruptions;

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- E. Minimize damage to public facilities and utilities, such as water and gas mains, electric, telephone and sewer lines, and streets and bridges located in areas of special flood hazard;
- F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
- G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and
- H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

Chapter 41 includes methods and provisions for:

- A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters;
- D. Controlling filling, grading, dredging and other development which may increase flood damage; and
- E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

4.10.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to hydrology and water quality if it would:

- A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin;
- C. 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; (i) result in substantial erosion or siltation on-or offsite; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or offsite; (iii) 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 (iv) impede or redirect flood flows;

- D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation;
or
- E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.10.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

This section contains the proposed revised and new policies and implementation programs from the Public Safety Element Update that would avoid or reduce significant hydrology and water quality impacts. Proposed new policies and implementation programs are shown in underline, while revised policies and implementation programs are shown in strikeout. The Housing Element Update does not contain policies or implementation programs that specifically address hydrology and water quality impacts.

Policy PS-5.45.3: Incorporate consideration of, and measures to mitigate the risks of, sea level rise, increased precipitation, flooding, extreme heat events, severe winds, prolonged drought, and other effects of climate change into the planning process.

Policy PS-6.7: Consider future sea level rise in the planning and design of future development.

Policy PS-6.8: Ensure ongoing regional coordination for resiliency planning and sea level rise protection projects.

Policy PS-6.9: Consider sea level rise in the development of watershed management plans and flood control infrastructure.

Policy PS-6.10: Encourage the use of environmentally sensitive sea level rise adaptation strategies that incorporate natural infrastructure.

Policy PS-6.11: Plan for the protection of the Inner Harbor area against the effects of sea level rise.

Policy PS-6.14: Consider reconciling existing City standards for storm drain design criteria with precipitation data from the State.

Program PS-6.5a: Amend Redwood City building codes and other development documents to ensure new development's site planning, building design, and construction materials accommodate increased precipitation, flooding, extreme heat events, severe winds, and prolonged drought. Periodically update the codes and documents to ensure compliance with best practices. Best practices include but are not limited to:

- Raising floor levels and minimum flood construction levels.
- Incorporating adaptive measures, such as shading, adequate ventilation and green or white roofs.

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- Insulating and improving the air tightness of buildings to increase reliance against extreme cold and heat.
- Using passive cooling and energy efficiency design requirements or allowing manual overrides (e.g., openable windows) when mechanical elements are in place will increase resilience, especially in the event of power outages.

Program PS-6.7a: Consistent with State recommendations and the San Mateo County One Shoreline program, consider identifying mid-century and end of century sea level rise projections that would be consistently used by the city in planning efforts and to evaluate all private and public development applications to ensure projects in sea level rise inundation zones are protected from inundation over the life of the project.

Program PS-6.7b: Seek funding sources and collaborate with local and regional public and private entities that can assist communities and businesses with technical assistance and potential funding for sea level rise resiliency planning. Technical assistance may include supporting business resiliency through preparedness education, trainings, and resources to protect properties from the effects of sea level rise.

Program PS-6.11a: In coordination with San Mateo County's OneShoreline program and other adjacent jurisdictions, create a document that identifies appropriate sea level rise hazard mitigation and adaptation objectives specific to the Inner Harbor area, Redwood Shores, Pacific Shores, and surrounding areas.

Program PS-6.7b: Identify sea level rise projections and use the projections for design and review of all private and public projects located in the sea level rise zone. Identify projections that are consistent with guidance contained within the State Agency Sea-Level Rise Action Plan for California, published by the Ocean Protection Council in 2022.

Program PS-7.1a: Develop a climate change-specific outreach program to inform community members how to prepare for, withstand, and recover after climate hazard events. Incorporate methods to overcome language, technological, and other barriers to reaching vulnerable communities. The outreach program should include:

- Public outreach to increase customer participation in water conservation programs and encourage water conservation methods during non-drought times.
- Information about existing energy efficiency and weatherization programs to reduce energy demand, make buildings safer to shelter in, and make buildings more resilient during power outages.
- Information about renewable energy, battery storage, and building and transportation electrification programs, financing, and rebates
- Extreme heat safety precautions to protect public health and extreme heat building retrofit guidance for home and business owners.

- Process to notify owners of property in areas with inundation or flooding potential regarding those hazards when they seek development review or other related County services.

Program PS-49: Upgraded Levees to Meet End of Century Sea Level Rise Projections. Upgrade existing levees in accordance with FEMA standards and FEMA direction state and federal standards to protect residential and commercial areas against 100-year flood hazards and sea level rise meet end of century sea level rise projections such that the levees can be certified by FEMA for flood protection under sea level rise conditions.

Program PS-6.8a: Collaborate regularly with sea level rise planning partners, such as the San Mateo County Flood & Sea Level Rise Resiliency District (OneShoreline), that can provide technical assistance for sea level rise resiliency planning.

4.10.5 Impacts and Mitigation Measures

This section describes potential impacts related to hydrology and water quality which could result from the implementation of the Project and recommends mitigation measures, as needed, to reduce significant impacts.

Water Quality Standards

Impact HYD-1 - Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Analysis of Impacts

Water quality in the Planning Area and surrounding jurisdictions is regulated by a number of federal, state, and county laws and regulations. The Planning Area is primarily located in the Redwood Creek system watershed. The Redwood Creek system is the largest watershed in the Planning Area. The watershed drains approximately 11.8 square miles, including portions of Redwood City, the Town of Woodside, and land in unincorporated San Mateo County. Within the Planning Area, water flows from the upper Emerald Lake area and drains toward San Francisco Bay. Runoff from the Planning Area also flows toward waterways and drainages, including Redwood Creek where pollutants eventually flow into the Bay. Common sources of stormwater pollutants include metals associated with roads and parking lots and building materials (such as galvanized steel) that are exposed to rain.

The City of Redwood City is a co-permittee in the San Francisco Bay Region National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit. The City's existing development review process evaluates proposed private projects against water quality and permitting requirements of the affected federal, state, and regional agencies. The City's General Plan contains goals, policies, and programs related to water quality standards. The Project does not propose changes or any new goals, policies, or implementation programs that address water quality, waste discharge, or stormwater requirements. The Natural Resources Element of the General Plan includes a number of goals, policies, and implementation programs related to water quality. Goals NR-5 and NR-7; Policies NR-5.2, NR-7.1, and NR-7.2; and Implementation Program NR-26 are intended to reduce the amount of polluted stormwater runoff

entering creeks in the Planning Area. Implementation Programs NR-28, NR-30, and NR-31 require compliance with NPDES permit and San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) requirements. Implementation Program NR-34 requires the City to conduct outreach to residents, businesses, and industries to minimize discharge of polluted runoff. Implementation Program NR-38 encourages cooperation with neighboring jurisdictions to reduce polluted runoff. These goals, policies, and implementation measures would help the City monitor and manage sources of potential short- and long-term water pollution. The City's development review process requires development proponents to comply with its stormwater Pollution Prevention Program, which satisfies NPDES permit requirements and requires site design measures, source control measures, permanent stormwater treatment control measures, construction best management practices (BMPs), and hydromodification management.

With continued implementation of the adopted General Plan goals, policies and programs, and the City's development review process, the Project's potential impacts on local and regional water quality from future development within the Planning Area would be reduced to less than significant levels. The Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Impacts to Groundwater Supply and Recharge

Impact HYD-2 – Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

Analysis of Impacts

The City overlies the southern end of the San Mateo Plain Subbasin (DWR Basin number 2-009.03) of the Santa Clara Valley Basin. According to the City's Urban Water Management Plan (UWMP), the City's current water supplies consist of potable water purchased from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) and non-potable water from the City's recycled water program (City of Redwood City 2021). The City has not historically used groundwater as a potable water source, and groundwater is not currently used as a municipal source of water in the Planning Area. The City is currently evaluating groundwater as a potential future emergency or back-up supply source. However, there is no guarantee at this time that future development associated with the proposed Project would use groundwater for water supply, and it is anticipated that future development would utilize potable water purchased from SFPUC (distributed by the City) and recycled water from the City.

Much of the development associated with implementation of the Project is anticipated to occur within areas that currently included development and impervious surfaces. Increases in new impervious areas within the City are expected to be minimal and is not expected to interfere substantially with groundwater recharge. The Project would not substantially decrease water supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. This impact would be considered ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

No required.

Impacts to Drainage Patterns, Erosion, Siltation, or Water Quality

IMPACT HYD-3 – Would the Project 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; (i) result in substantial erosion or siltation on-or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or offsite; (iii) 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?

Analysis of Impacts

Alter Drainage Patterns. The Planning Area is primarily located in the Redwood Creek system watershed, the largest watershed in the Planning Area. Within the Planning Area, water flows from the upper Emerald Lake area and drains toward San Francisco Bay. Runoff from the Planning Area also flows toward waterways and drainages, including Redwood Creek.

The Planning Area includes urban and suburban development, and the overall development pattern of the Planning Area is not expected to significantly change. Implementation of the Project would generally continue existing development trends and patterns. Changes to site-specific drainage conditions would be evaluated in the CEQA and planning review processes to determine the most appropriate way to accommodate existing drainages. Similar to the overall development pattern of the Planning Area, the system of drainage and flood control channels would likely remain similar to existing conditions.

The General Plan contains existing goals, policies, and implementation programs related to drainage modifications. Goal PS-7, Policies PS-7.2 and PS-7.7 and Programs PS-43 and BE-53 require the City to maintain adequate drainage conditions in the Planning Area.

In addition, the City's development review procedures require projects to be consistent with federal, state, and local regulations regarding drainage channel design and operation, runoff retention, and stormwater treatment. Continued implementation of these goals, policies, and

implementation measures, and continued implementation of the City's development review process would ensure the Project would have less than significant impacts on drainage patterns.

Erosion/Siltation. Future development under the Project would result in grading of vacant land or the demolition and regrading of developed land. During grading, erosion from wind and water can occur, particularly if disturbed soils are left exposed for long periods of time. The Natural Resources Element and Public Safety Element of the General Plan contain goals, policies, and implementation measures which would continue to minimize erosion and siltation from new development under the Project. Goal NR-5, and Programs NR-25 and PS-52 address appropriate erosion prevention and control.

In addition, the City's development review procedures require new projects to be consistent with federal and state regulations regarding best management practices (BMPs) to protect water quality, including erosion control. By implementing the adopted General Plan goals, policies, and implementation programs and continuing to implement the City's development review process, the Project would have less than significant impacts to drainage patterns as they relate to erosion and siltation.

Increased Runoff. As stated above, the Planning Area is developed with urban and suburban uses, and the overall development pattern is not likely to change substantially in the future. A key design requirement for all development is no increase in offsite downstream runoff; this would be achieved through runoff retention or detention onsite and by implementing low impact development/stormwater treatment features where practical. The Natural Resources Element and Public Safety Element of the General Plan contain goals, policies, and implementation programs that would continue to protect downstream properties from increased runoff from new development under the Project. These include Goal NR-9, Policies NR6.5, NR-7.2, PS-7.6, and PS-7.7, and Programs NR-26, and PS-58.

In addition, the City's development review procedures require projects to be consistent with flood control regulations and guidelines of federal and state agencies to protect downstream properties. Continued implementation of relevant General Plan goals, policies, and programs and continued implementation of the City's development review process would ensure the Project would have a less than significant impact related to increases in runoff.

Increased Pollution. The preceding sections conclude that future development under the Project would have less than significant impacts in terms of altering drainage patterns, increasing erosion and siltation, and increasing downstream runoff. Therefore, the Project would have a less than significant impact related to increased water pollution in the Planning Area.

Affect Flood Flows. Portions of the Planning Area are mapped as Special Flood Hazard Area (SFHA), including 100-year floodplains in Downtown Redwood City along and extending north and south from Highway 101 and in Redwood Shores in the northern portion of the Planning Area (FEMA 2019). A sizeable portion of the Planning Area is mapped as flood hazard zones with 0.2% annual chance of inundation (500-year floodplains). These areas are located along Redwood Creek. FEMA flood mapping shows some northern portions of the Planning Area near the Bay shoreline are at significant risk from flooding, so there is potential for new development to substantially alter flood flows. However, the existing General Plan Natural Resources and Public Safety Elements contain goals, policies, and implementation programs that address flooding risks

in the Planning Area. These include: Goal PS-7, Policies NR-5.3, NR-5.5, PS-7.1 through PS-7.8, and Programs NR-26, NR-38, PS-27, PS-29, PS-43, PS-46, PS-49, PS-50, PS-53, PS-54, and PS-59. The Project would have less than significant impacts relative to altering flood flows.

Based on the preceding analysis, future development under the Project would not substantially alter the existing drainage pattern of the Planning 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: (a) result in substantial erosion or siltation on- or off-site; (b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (c) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems; (d) provide substantial additional sources of polluted runoff; or (e) impede or redirect flood flows. Therefore, this impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Pollutant Risk from Site Inundation

Impact HYD-4 – Would the Project result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Analysis of Impacts

Flood Hazard. Portions of the Planning Area are mapped as Special Flood Hazard Area (SFHA), including 100-year floodplains in Downtown Redwood City along and extending north and south from Highway 101 and in Redwood Shores in the northern portion of the Planning Area (FEMA 2019). A sizeable portion of the Planning Area is mapped as flood hazard zones with 0.2% annual chance of inundation (500-year floodplains). These areas are located along Redwood Creek. FEMA flood mapping shows some portions of the Planning Area are subject to flooding risks. However, the General Plan contains a number of adopted goals, policies, and programs intended to reduce flooding risks, including Goal PS-7, Policies NR-5.3, NR-5.5, PS-7.1 through PS-7.8, and Programs NR-26, NR-38, PS-27, PS-29, PS-43, PS-46, PS-49, PS-50, PS-53, PS-54, and PS-59. Chapter 41 of the City's Municipal Code (Floodplain Management) also includes methods and provisions intended to minimize public and private losses due to flood conditions. The Public Safety Element Update component of the proposed Project further contains a combination of existing and new policies and implementation programs that would reduce flood risks to people and property cause by sea level rise. The applicable policies and implementation programs from the proposed Public Safety Element Update related to sea level rise include: Policy PS-5.45.3, Policy PS-6.7, Policy PS-6.8, Policy PS-6.9, Policy PS-6.10, Policy PS-6.11, Policy PS-6.14, Program PS-6.5a, Program PS-6.7a, Program PS-6.7b, Program PS-6.11a, Program PS-6.7b, Program PS-7.1a, Program PS-49, and Program PS-6.8a. See section 4.10.4 for the full text of each policy or implementation program.

Continued implementation of adopted goals, policies, and implementation programs; compliance with the provisions of Chapter 41 of the Municipal Code; and implementation of the sea level rise-related policies and implementation measures included in the Project would minimize the impact of flooding hazards on existing and new development and result in a ***less than significant impact*** related to release of pollutants within the Planning Area due to flooding.

Tsunami. A tsunami is a large tidal wave generated by an earthquake, landslide, or volcanic eruption. Large earthquakes occurring in the Pacific Ocean can generate seismic sea waves, such as tsunamis. The Planning Area is located approximately 10 miles east of the Pacific Ocean shoreline and is approximately 25 miles south of the Golden Gate, where San Francisco Bay meets the Pacific Ocean. A seismic sea wave generated in the ocean could have effects on lands proximate to the Golden Gate; the energy of such waves would be expected to dissipate with distance from the open ocean. Owing to this distance from the open ocean, most of the Planning Area is not located within a Tsunami Hazard Area (California Department of Conservation 2022). However, a small portion of the Planning Area, including Bair Island, Greco Island, Maple Street, and the business centers off of Seaport Boulevard, are within a Tsunami Hazard Area. However, these areas would be protected from inundation by seismically induced sea waves due to the extensive existing levee system and intervening natural features, such as wetlands, located along the Bay shoreline. Therefore, the likelihood of the Planning Area being inundated by a tsunami is low. This impact would be ***less than significant***.

Seiche. A seiche is a standing wave generated during earthquakes within enclosed bodies of water like reservoirs and lakes. Due to the Planning Area's proximity to the San Francisco Bay, the Planning Area could experience seiche or seiche-related effects during seismic activity. The majority of lands immediately adjacent to the San Francisco Bay, which are at a higher risk of seiche, include open space areas, such as Bair, Bird, and Greco Islands. The closest developed areas to the Bay include the Redwood Shores area, the Bayfront, and the Port of Redwood City.

Due to the distance from the San Francisco Bay shoreline and the buffer provided by islands, the severity of the seiche energy should be decreased upon reaching the developed portions of the Planning Area in the Bayfront area, representing a less than significant impact in regards to seiche inundation. Additionally, any development within the Planning Area would also be subject to the requirements of the California Building Code (CBC). Several measures required by the CBC which address seismic hazards would help to reduce risk of loss of property or life in the event of a seismic-related seiche. New development and redevelopment of existing buildings within the Planning Area could reduce seiche related risk, as new properties would be subject to more stringent seismic-related measures, which would assist in reducing seiche related hazards. Individual developments within the Planning Area would be required to undergo project-specific environmental review. If project-level significant seiche impacts are identified, specific mitigation measures would be required under CEQA.

Through implementation of adopted General Plan policies and implementation programs, adherence to the CBC, and due to the distance between the developed areas of the Bayfront area and the San Francisco Bay shoreline, the Project would result in a ***less than significant impact*** related to seiche.

Pollutant Release. The preceding analysis demonstrates the Planning Area has a low risk of pollutants being released during flooding, a tsunami, or seiche within the region. Therefore,

impacts are considered less than significant. Due to the relatively low risk to the Planning Area of flooding, tsunami, and seiche, there is little potential for significant release of pollutants from these sources. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Water Quality and Groundwater Management Plans

Impact HYD-5 – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Analysis of Impacts

Water Quality Control Plan. The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) is the water quality control plan for the San Francisco Bay Region, including the Planning Area. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Basin Plan is continually being updated to include amendments related to implementation of the TMDL of specific potential pollutants or water quality stressors, revisions of programs and policies within the San Francisco Bay RWQCB region, and changes to beneficial use designations and associated water quality objectives.

The General Plan requires future development within the Planning Area to be consistent with NPDES permit requirements. As the Basin Plan is the master water quality control planning document for RWQCB, and Project would be required to be compliant with the NPDES permit requirements, future development in the Planning Area would be compliant with the Basin Plan. Therefore, the Project would not conflict with or obstruct implementation of a water quality control plan.

Groundwater Management Plan. In 2014, the governor of California signed the Sustainable Groundwater Management Act (SGMA) into law. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably and requires those GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California. The City overlies the southern end of the San Mateo Plain Subbasin (DWR Basin number 2-009.03) of the Santa Clara Valley Basin. The subbasin is not adjudicated, nor has it been found by DWR to be in a condition of overdraft. According to the City’s 2020 Urban Water Management Plan (UWMP), as part of the implementation of the Sustainable Groundwater Management Act (SGMA), the subbasin was ranked as a “very low priority” basin under the 2014 California Statewide Groundwater Elevation Monitoring (CASGEM) basin prioritization process and maintained this

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ranking in DWR's latest basin prioritization effort in 2019 (City of Redwood City 2021). The subbasin is therefore not subject to the requirements of SGMA.

Further, according to the City's UWMP, the City's current water supplies consist of potable water purchased from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) and non-potable water from the City's recycled water program (City of Redwood City 2021). Groundwater is not currently used as a municipal source of water in the Planning Area. As such, future development under the project would not utilize groundwater, and the Project would not conflict with or obstruct implementation of a sustainable groundwater management plan. This impact would be *less than significant*.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.10.6 References

California Department of Conservation. 2022. San Mateo County Tsunami Hazard Areas. Web: <https://www.conservation.ca.gov/cgs/tsunami/maps/san-mateo> [Accessed September 8, 2022].

City of Redwood City. 2010. A New General Plan for Redwood City. Draft Environmental Impact Report. May 2010.

City of Redwood City. 2021. 2020 Urban Water Management Plan for City of Redwood City. Public Review Draft May 2021.

Federal Emergency Management Agency (FEMA). 2019. FIRM 06081C1069G, FIRM 06081C0188F, FIRM 06081C0186F, FIRM 06081C0167G, FIRM 06081C0301F, FIRM 06081C0303F. Web: <https://msc.fema.gov/portal/search?AddressQuery=redwood%20city#searchresultsanchor> [Accessed September 8, 2022].

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2015. California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit Order No. R2-2015-0049 NPDES Permit No. CAS612008. November 19, 2015.

4.11 Land Use and Planning

This EIR chapter describes the existing land uses in the Planning Area, identifies applicable regulations relevant to land use, identifies potential land use impacts, and suggests mitigation measures, if required.

4.11.1 *Environmental Setting*

Redwood City is within San Mateo County and is part of the wider San Francisco Bay Area. Most of the land within the Planning Area is developed and includes urban/suburban uses and open space areas with native habitats. The Planning Area includes a diverse urban landscape including public parks, waterfront development, hillside homes, historic residential neighborhoods, the Downtown Precise Plan mixed-use district, neighborhood commercial centers, port-related industrial uses, and office complexes.

The native habitat in the Planning Area consists primarily of Baylands, including Bair Island, Bird Island, Greco Island, the Redwood Shores Lagoon, and the salt crystallization ponds on the Cargill property. The Bayland islands are preserved for their natural resources and are managed by the U.S. Fish and Wildlife Service (USFWS) as part of the Don Edwards National Wildlife Refuge. The southern, hilly upland portions of the Planning Area include the Edgewood County Park and Natural Preserve, and Stulsaft Park. The Emerald Hills and Farm Hill neighborhoods in the southern portions of the Planning Area are low-density residential communities containing scattered areas of native vegetation on private property.

Existing land uses within the Planning Area are discussed below.

Existing Land Uses and General Plan Land Use Designations

The Planning Area consists of a variety of existing land uses that fall within seven general categories: residential, commercial, industrial, public and institutional, parks and open space, undeveloped (vacant), and other. Low-density residential uses comprise the principal land use outside of the city center, which includes medium, medium-high, and high-density housing. In addition to the higher density housing, the city center includes commercial uses as well as much of the public and institutional designations. Parkland is interspersed within the City; however, the largest open space regions are on the eastern side of the City near the San Francisco Bay.

General Plan land use designations within the City are described below. The Existing General Plan Land Use Map is shown in Figure 3-3 in the Project Description (Chapter 3.0), and Figure 3-4 shows the Proposed General Plan Land Use Map.

Residential Land Uses

The four residential land use categories recognize long-established residential neighborhoods in the City. While residential uses are the primary permitted uses, other complementary and

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compatible uses can be established as zoning regulations permit (such as parks, special residential uses, child care facilities, schools, and places of religious assembly).

Residential – Low: The Residential - Low category accommodates primarily detached, low-density, residential units on individual lots with private yards and private parking.

Residential – Medium: The Residential - Medium category accommodates detached and attached residential units, including small-lot subdivisions, duplexes and triplexes, townhouses with private open space, and multi-unit structures that comprise a cohesive development incorporating common open space areas.

Residential – Medium High: The Residential - Medium High category accommodates single structures or a collection of cohesive structures that house multiple units, with common open space areas and amenities. Residential development types may include row houses, townhouses, stacked flats, apartments, and similar housing types.

Residential – High: The Residential - High category provides for higher-density, multi-story residential development, with a focus on providing an urban intensity and function at locations within easy walking distance to transit, recreation and community facilities, employment centers, and commercial services.

Commercial Land Uses

Commercial categories establish opportunities for varied commercial enterprises and can serve both residents' needs as well as local, regional, and international markets. Commercial land can provide space for companies of all sizes to locate in office developments.

Mixed-Use Land Uses

Mixed-use land uses offer opportunities for people to live close to work or near transit stops, to walk to neighborhood stores and parks, to utilize indoor and outdoor entertainment close to home, and to traverse pedestrian districts.

Industrial Land Uses

The Port of Redwood City is the only deep water port in South San Francisco Bay. Heavy industrial uses, industrial goods distribution, and infrastructure materials manufacturing (including gravel and cement processing) are located near the Port. The city is also home to lighter industrial uses such as light manufacturing and repair/service shops.

Public and Quasi-Public Land Uses

The Public and Quasi-Public category refers to uses operated for public benefit. Public facilities are those that fit in the category that encompasses government, civic, cultural, health, and infrastructure uses and activities which contribute to and support community needs.

Parks and Open Space Land Uses

The Parks category applies to open space areas set aside for active and passive recreation, including public and private parks of all sizes, sports fields, recreational facilities, plazas, and trails. The Open Space designations identify areas devoted to the preservation of natural resources and use for outdoor recreation (including areas of historic and cultural value).

Precise Plans and Specific Plans

Precise Plans and Specific Plans implement a city or county's general plan by establishing detailed regulations for a defined area. These plans are put in place to regulate distinct character areas that cannot be regulated through general development ordinances or citywide zoning. Adopted Precise and Specific Plans within the Planning Area include the Downtown Precise Plan (DTPP), Stanford in Redwood City Precise Plan, North Main Street Precise Plan, Peninsula Park Precise Plan, Marina Shores Village Precise Plan, Non-Final Inner Harbor Specific Plan, Kaiser Medical Center Precise Plan, and Sequoia Hospital Precise Plan.

4.11.2 Regulatory Framework

State

California Government Code Sections 65580-65589 Housing Elements

Unlike the other General Plan elements, the Housing Element requires periodic updating and is subject to detailed statutory requirements and mandatory review by the State of California Department of Housing and Community Development (HCD). According to State law, the Housing Element must:

- Provide goals, policies, quantified objectives, and scheduled programs to preserve, improve, and develop housing.
- Identify and analyze existing and projected housing needs for all economic segments of the community.
- Identify adequate sites that are/will be zoned and available for housing during the Housing Element planning period — between 2023 and 2031 — to meet the City's share of regional housing needs at all income levels.
- Undergo HCD review of the Draft Housing Element and certification of the City's adopted Housing Element in compliance with state law.

State law establishes detailed content requirements for Housing Elements and establishes a regional "fair share" approach to distributing housing throughout all communities in the Bay Area, inclusive to people of all incomes. The law recognizes that in order for the private sector and non-profit housing sponsors to address housing demand and build housing, local governments must adopt land use plans and zoning regulations that provide opportunities for—and do not unduly constrain—housing development.

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The Housing Element must provide clear policies and direction for making decisions related to zoning, subdivision approval, and capital improvements (sewer, water, storm drainage, gas, electricity, etc.) that relate to housing needs.

California Government Code Section 65302 and Other Pertinent State Laws Relating to General Plans

California Government Code Section 65302(g)(1) establishes the legislative framework for California's Safety Elements. This framework consolidates the requirements from relevant federal and state agencies, ensuring that all jurisdictions are compliant with the numerous statutory mandates. These mandates include:

- Protecting against significant risks related to earthquakes, tsunamis, seiches, dam failure, landslides, subsidence, flooding, and fires as applicable.
- Including maps of known seismic and other geologic hazards.
- Addressing evacuation routes, military installations, peak-load water supply requirements, and minimum road widths and clearances around structures as related to fire and geologic hazards, where applicable.
- Identifying areas subject to flooding, sea level rise, and wildfires.
- Avoiding locating critical facilities within areas of high risk.
- Assessing the community's vulnerability to climate change and including adaptation and resilience goals, policies, and implementation actions.

Regional

Association of Bay Area Governments - Regional Housing Needs Allocation

Since 1969, the State of California has required each local government to plan for its share of the state's housing needs for people of all income levels. Through the Regional Housing Needs Allocation (RHNA) process, every local jurisdiction is assigned a number of housing units representing its share of the state's housing needs for an eight-year period. State Housing Element Law requires the Association of Bay Area Governments (ABAG) to develop a methodology for distributing the Bay Area's portion of the state housing needs to local governments within the nine-county region.

ABAG adopted its final 2023-2031 RHNA plan for the Bay Area on December 16, 2021 and the HCD approved the plan on January 12, 2022. The region's nine counties and 101 cities are collectively responsible for developing 441,176 new housing units during the 2023-2031 period. The City of Redwood City's allocation is for 4,588 housing units during the 2023-2031 6th Cycle Housing Element Update.

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range plan for the nine-county San Francisco Bay Area. *Plan Bay Area 2050* focuses on four key elements — housing, the economy, transportation and the environment — and identifies a path to make the Bay Area more equitable for all residents and

more resilient in the face of unexpected challenges. The population in the region is expected to grow from around 7.8 million residents today to over 10 million residents by 2050. The region is forecast to add 1.4 million new jobs, for a total of 5.4 million Bay Area workers. *Plan Bay Area 2050* states that the Bay Area will need to build 1.36 million new homes by 2050 to meet this forecasted future demand.

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 and minimize impacts to less developed areas. The focused growth strategy targets four types of Growth Geographies:

- Priority Development Areas (PDAs): Areas generally near existing job centers or frequent transit that are locally identified (i.e., identified by towns, cities or counties) for housing and job growth.
- Priority Production Areas (PPAs): Locally identified places for job growth in middle-wage industries like manufacturing, logistics or other trades. An area must be zoned for industrial use or have a predominantly industrial use to be a PPA.
- Transit-Rich Areas (TRAs): Areas near rail, ferry or frequent bus service that were not already identified as PDAs. Specifically, these are areas where at least 50 percent of the area is within 1/2 mile of either an existing rail station or ferry terminal (with bus or rail service), a bus stop with peak service frequency of 15 minutes or less, or a planned rail station or planned ferry terminal (with bus or rail service).
- High-Resource Areas (HRAs): State-identified places with well-resourced schools and access to jobs and open space, among other advantages, that may have historically rejected more housing growth. This designation only includes places that meet a baseline transit service threshold of bus service with peak headways of 30 minutes or better.

Local

Redwood City General Plan

The adopted General Plan Built Environment - Urban Form and Land Use Element contains the following goals and policies that address land use and planning. Please note that this section does not include all the policies and implementation plans that support each goal. The proposed General Plan goals, policies, and implementation actions that would be revised or added by the proposed Project can be found in Appendix B.

GOAL BE-1: Achieve complete and integrated neighborhoods, corridors, and centers.

GOAL BE-2: Recognize, maintain, and celebrate the unique qualities of Redwood City's neighborhoods.

- Policy BE-2.1: Create complete neighborhoods by integrating schools, parks, childcare centers, community centers, infrastructure, green spaces and parks, and other public amenities into each neighborhood.

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- Policy BE-2.3: Develop and implement distinct plans for each Redwood City neighborhood typology that respond to and maintain the character of each.
- Policy BE-2.4: Provide opportunities for housing development at a range of densities and housing types that provide various choices for current and future residents.

GOAL BE-3: Encourage high-quality design in all new and modified housing.

GOAL BE-4: Preserve community character and historic buildings while attracting new infill development and investment in Historic Influence High Density Neighborhoods.

- Policy BE-4.1: Insist upon high-quality infill development and facilitate the renovation of existing residential buildings.
- Policy BE-4.2: Encourage carefully designed and sensitive infill development that creates harmony and compatibility with nearby structures of historic value and merit. Require new development to integrate with, if not enhance, the historic nature of the neighborhood through appropriate site patterns and building character.

GOAL BE-5: Retain the unique character of the Historic Influence Low Density Neighborhoods.

- Policy BE-5.1: Require that new construction, additions, renovations, and infill development be sensitive to neighborhood context, historic development patterns, and building form and scale (for example, second stories, detached garages, setbacks, enhanced front entrances).

GOAL BE-6: Preserve the character and enhance the quality of Post-War Neighborhoods.

- Policy BE-6.1: Ensure that new development is compatible with the established character of individual Post-War Neighborhoods.
- Policy BE-6.2: Create new connections to commercial uses, schools, parks and recreational areas, and transit from Post-War Neighborhoods.
- Policy BE-6.3: Encourage quality design in Post-War Neighborhoods, including appropriate articulation and modulation of building masses and elevations; compatibility with neighborhood development in terms of density, scale, and street-facing elevations; architectural treatment of all elevations visible from public places; and orientation to the street.

GOAL BE-8: Preserve the scenic beauty and quality homes that define Hillside Neighborhoods.

- Policy BE-8.1: Minimize the visual and environmental impact of development upon sensitive hillside areas.
- Policy BE-8.2: Provide connections to commercial uses, schools, trails, and local parks.
- Policy BE-8.3: Address oversized and out-of-scale residential development, including appropriate neighborhood building scale and compatibility.

GOAL BE-9: Preserve the qualities that distinguish Master Planned Neighborhoods.

- Policy BE-9.1: Continue to enforce development standards that apply to Master Planned Neighborhoods (including those focusing on the provision of open space) to ensure that neighborhood evolution holds to the original vision.
- Policy BE-9.2: Prohibit gated streets in any new Master Planned Neighborhoods, and review carefully any proposal to provide gates in already constructed neighborhoods, with the goal of providing for connectivity and integration into surrounding areas.
- Policy BE-9.3: Require a variety of homes within any new residential master planned development, with the goal of establishing new opportunities for persons of varied income ranges, ages, lifestyles, and family needs.

GOAL BE-10: Encourage the development of pedestrian- and water-oriented mixed-use communities that provide public accessibility to the Bay in Waterfront Neighborhoods.

- Policy BE-10.1: Require that Waterfront Neighborhoods provide public access along water edges, to public open spaces and trails and to vista points, as integral parts of neighborhood development.
- Policy BE-10.2: Allow for a diversity of unique housing types, including floating homes and live-aboard boats. Consult with interested stakeholders to enhance existing floating communities and to establish floating community best practices and standards.
- Policy BE-10.3: Ensure that development in Waterfront Neighborhoods considers and plans for potential impacts associated with climate change and sea level rise.
- Policy BE-10.4: Consider the design of Mixed Use - Waterfront neighborhoods and relationship to the Port area and Port uses.
- Policy BE-10.5: Establish design guidelines specific to Waterfront neighborhoods to ensure new development exemplifies quality architecture and responds to its location on the Bay.
- Policy BE-10.6: Require that development along the U.S. 101 frontage include design elements, landscaping, and signage that create a positive aesthetic condition, as viewed from the freeway corridor.
- Policy BE-10.7: Improve pedestrian, bicycle, transit, and automobile linkages between the bayfront and the areas west of U.S. 101.
- Policy BE-10.8: Whenever possible, encourage new development in Waterfront Neighborhoods to take shape as extensions of the urbanism of Redwood City, with street patterns of a similar scale to historic areas, buildings fronting those streets, and with good connections between adjacent projects. If a new large-scale development project is able to achieve circulation interconnectedness for all modes and maximize walkability, then the small block pattern may not be required.

GOAL BE-11: Create memorable and engaging retail, residential, and mixed-use destinations and paths along the corridors.

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- Policy BE-11.1: Improve the corridors to create a network of “complete streets” that emphasize pedestrian orientation and safety, public transit access, safe bicycle movement, and other improvements.
- Policy BE-11.2: Improve the corridors to create a network of “green streets” that address the environmental impacts of street paving.
- Policy BE-11.3: Plan for and accommodate mixed-use projects along corridors, where a site or sites are developed in an integrated, compatible, and comprehensively planned manner involving two or more land uses. Combine residential and office uses with commercial development to reduce automobile trips and encourage walking, and facilitate compact, sustainable development.
- Policy BE-11.4: Promote mixed-use developments that include higher-density residential units that transition sensitively with adjacent lower-density residential uses.
- Policy BE-11.5: Improve public streetscapes along the corridors, including widened sidewalks and crosswalks, protected crosswalks, regular street tree planting, bus shelters and street furniture, and pedestrian-oriented street lighting.
- Policy BE-11.6: Provide that buildings located along corridors be designed to define the public realm, activate sidewalks and pedestrian paths, and provide "eyes on the street" in accordance with the following principles:
 - Emphasize pedestrian orientation in site and building design, promoting a walkable environment with active street frontages, well-scaled buildings, and usable site spaces.
 - Minimize the visual impact of parking facilities on all public streets. Locate the frontages of buildings directly adjacent to the public sidewalk.
 - Provide public open spaces for public enjoyment, and include outdoor seating or other amenities that extend interior uses to the sidewalk.
 - Minimize driveways, as they interrupt the continuity of street facing building elevations; prioritize their location to side streets and alleys.
 - Utilize building patterns that mix the heights of elements, and consider adjacent lower scale development as applicable.
- Policy BE-11.7: Provide the appropriate density and intensity of land uses to facilitate high levels of transit use along corridors.
- Policy BE-11.8: Ensure that buildings along corridors are sensitive to adjacent neighborhoods, providing adequate scale transitions.
- Policy BE-11.9: Encourage pedestrian activity by requiring all ground-floor businesses to include transparent window fronts and, to the greatest degree possible, be oriented toward commerce.
- Policy BE-11.10: Study the feasibility of rebuilding the intersection of Woodside Road and El Camino Real as a surface intersection that establishes a stronger linkage between adjacent commercial districts and residential neighborhoods. Land currently devoted to

entrance ramps could be developed as new commercial or mixed-use infill development, which may help to finance the improvements.

- Policy BE-11.11: Explore establishing minimum development intensities and/or heights along primary corridors.

GOAL BE-12: Transform the El Camino Real Corridor into a “Grand Boulevard” that supports walking, transit, bicycling, and economic development.

- Policy BE-12.1: Integrate land use and transportation planning and development to transform El Camino Real to an urban, pedestrian-friendly, and transit-oriented boulevard for residents to live, work, shop and play.
- Policy BE-12.2: Encourage the replacement of older low-scale, auto-oriented development with well-designed new projects that offer pedestrian orientation, higher densities with more efficient use of land, and continued productive economic value.
- Policy BE-12.3: Accommodate the pedestrian in all public and private improvement projects along El Camino Real.
- Policy BE-12.4: Enhance the visual character of the El Camino Real Corridor by public streetscape improvements, including landscaping, coordinated street furniture and fixtures, and upgraded infrastructure.
- Policy BE-12.5: Provide vibrant public spaces and gathering places along the El Camino Real Corridor.
- Policy BE-12.6: Strengthen pedestrian, transit, and bicycle connections to provide convenient connectivity to the Caltrain Station.

GOAL BE-13: Enhance the Woodside Road Corridor as an attractive residential boulevard with walkable mixed-use neighborhood centers, a pedestrian and transit-oriented character, and consistent design elements that unify its image.

- Policy BE-13.1: Promote a comprehensive streetscape and pedestrian improvement effort for Woodside Road. Design tree planting to promote pedestrian safety, comfort and a sense of security from moving traffic, and provide street lighting that focuses light at the pedestrian level.
- Policy BE-13.2: Encourage the development of mixed-use neighborhood nodes as pedestrian-oriented “villages,” providing walkable destinations for shopping, leisure, and enjoyment at designated locations along Woodside Road.
- Policy BE-13.4: Support new higher-density residential development on Woodside Road, while ensuring that new development is sensitive to adjacent single-unit residential neighborhoods.
- Policy BE-13.5: Require quality infill between existing developments, with buildings and frontage improvements that create a coherent, attractive boulevard character.
- Policy BE-13.6: Reorient new development along Woodside Road, between El Camino Real and U.S. 101, away from the limited access expressway configuration to a full-access

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boulevard where buildings are oriented toward the street and pedestrians may cross safely, conveniently, and legally.

GOAL BE-14: Re-create Middlefield Road as a pedestrian-friendly, neighborhood-serving Corridor that integrates with transit.

- Policy BE-14.1: On Middlefield Road southeast of Woodside Road, create a unified commercial and mixed-use district that integrates diverse land use activities and scales of development. Encourage medium-scale commercial development at designated locations to serve established neighborhoods along the Middlefield Corridor.
- Policy BE-14.2: Northwest of Woodside Road, preserve and strengthen the long-established residential and historic character of the surrounding neighborhoods, maintaining a general lower-scale, yet high-density quality. Develop design guidelines that respond to established forms and styles.
- Policy BE-14.3: Enhance pedestrian and bicyclist safety along the Middlefield Corridor through streetscape improvements, additional crosswalks, and other measures appropriate for the Corridor.
- Policy BE-14.4: Consult with the County of San Mateo and North Fair Oaks neighborhood as they develop a cohesive Community Plan that reflects the needs and desires of the community.
- Policy BE-14.5: Explore annexation desires and options for the Sphere of Influence areas.
- Policy BE-14.6: Improve all means of transportation (pedestrian, bicycle, public transit and vehicles), and enhance pedestrian and bicycle safety.
- Policy BE-14.7: Include pedestrian amenities on Middlefield Road, and create community gathering spaces as destinations. Utilize materials and public art in public spaces that promote local identity and pride.
- Policy BE-14.8: Establish land uses and development that support a local streetcar line along Middlefield Road.
- Policy BE-14.10: Improve the Middlefield Road streetscape to provide an attractive entrance into Downtown. These improvements should coordinate with existing streetscape improvements to facilitate its transition into Theater Way.

GOAL BE-15: Make Veterans Boulevard an attractive gateway into Redwood City, with uses and a streetscape that welcome visitors from the region.

- Policy BE-15.1: Encourage private property redevelopment initiative along the Veterans Boulevard Corridor to create new Commercial - Regional, Commercial - Office/Professional, and Mixed Uses consistent with the Land Use Map.
- Policy BE-15.2: Preserve areas designated for light industrial, while ensuring that potential negative impacts to surrounding uses are mitigated.
- Policy BE-15.3: Pursue streetscape enhancements along Veterans Boulevard that create a parkway of higher-density buildings framed by an attractive, coordinated landscape of

trees and pedestrian-oriented open spaces. Increase the number of controlled intersections and crosswalks to reduce the street's effect as a barrier to pedestrian movement.

GOAL BE-16: Re-create Broadway as a multi-modal Corridor that links Downtown to properties across Woodside Road.

- Policy BE-16.1: Pursue new land use approaches along the different segments of the Broadway Corridor consistent with the Land Use Map. These land use approaches are designed to encourage development at an intensity and pattern that supports a street car transit system.
- Policy BE-16.2: Prepare and implement a streetscape plan to create a stronger entrance into Downtown and to integrate the diverse size and scale of the commercial and mixed-use activities.
- Policy BE-16.3: Pursue infrastructure and mobility enhancements that will facilitate movement across Woodside Road and that promote walking, bicycling, and transit use, including a streetcar system.

GOAL BE-17: Develop and enhance successful, vital, and engaging centers of activity in Redwood City.

- Policy BE-17.1: Accommodate outdoor cafes and similar neighborhood-serving uses in the public right-of-way as a means of promoting pedestrian activity and center vitality. Ensure that access and noise considerations relative to surrounding uses are sufficiently addressed.
- Policy BE-17.2: Promote the revitalization, upgrading, and beautification of commercial retail centers and the conversion of strip commercial areas to coordinated, complementary retail and service uses.
- Policy BE-17.3: Encourage and facilitate the establishment of child-care facilities in proximity to large employment areas such as Downtown, south Broadway, Redwood Shores, the Kaiser and Sequoia Hospital areas, and near high-density residential areas and transit nodes.
- Policy BE-17.4: Facilitate a new Redwood Creek/Harbor Center that embraces Redwood Creek and the Bay, fostering an exciting waterfront destination and neighborhood with a mix of uses.

GOAL BE-18: Make Downtown the premier urban location on the Peninsula for business, government functions, shopping, dining, living, and entertainment, with attractive buildings and streetscapes that respect and respond to Redwood City's history.

- Policy BE-18.1: Adopt and implement the new Downtown Precise Plan.
- Policy BE-18.2: Allow for a range of uses, building types, and building heights, to promote diverse mixed-use development, pedestrian activity, and a vibrant city center.

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- Policy BE-18.3: Enhance functioning commercial areas within Downtown to help define community identity.
- Policy BE-18.4: Require residential, office, and governmental agency buildings and sites to be designed to encourage pedestrian activity, through street character, plazas, and other features and amenities that enhance Downtown’s viability.
- Policy BE-18.5: Encourage development and growth in the Downtown such that it serves as the city’s major center of local and regional-serving retail, including encouraging relocation of retail into the Downtown core.
- Policy BE-18.6: Continue to foster pedestrian-oriented redevelopment in areas surrounding the Caltrain Station. Prioritize redevelopment of the Middlefield Parking Lot and other public owned land in the vicinity to support Downtown activity.
- Policy BE-18.7: Pursue mixed-use housing and commercial development in Downtown that includes a range of housing options and affordability levels.
- Policy BE-18.8: Provide the amenities and range of entertainment, shopping, and cultural offerings that will make Downtown a vital regional and local destination.
- Policy BE-18.9: Create a network of attractive, interesting public places and spaces that encourage walking and lingering through connections to Broadway, adjacent neighborhoods, transit, and El Camino Real.
- Policy BE-18.10: Plan, manage, and operate the overall supply of parking to provide “just enough” parking at the right price to serve the needs of people living, working, and visiting Downtown.

GOAL BE-22: Achieve land use patterns and development approaches that incorporate sustainability principles.

- Policy BE-22.1: Strive for consistency between the General Plan and the Zoning Ordinance and other local regulatory documents that implement General Plan policies.
- Policy BE-22.2: Apply the following performance criteria and standards, as applicable, to all new development projects, with the level of application commensurate with the scale of development:
 - The development must result in a net positive fiscal impact to the City unless the City Council identifies unique circumstances for waiving this requirement.
 - Adequate long-term water supplies must be available to serve the new development without impinging upon service to established and approved uses and developments. Adequacy must be fully documented to the satisfaction of the responsible City departments.
 - The City’s adopted service standards for pedestrian, bicycle, public transit usage, and motorized vehicle mobility must be achieved. Any circulation improvements or programs needed to maintain the established level of service standard must be programmed and funding committed for construction or implementation at the appropriate time.

- New development must plan for access to public transportation, including the potential streetcar system, transportation hub, and ferry terminal, as appropriate.
- Limit new development within the floodplain or ensure new development incorporates extra precautions into the site and building design to account for floodplain location.
- Storm drain, sewerage, and similar infrastructure improvements necessary to serve the development must be fully funded at the appropriate time, and any such improvements shall not place burdens upon nor otherwise impact tributary facilities.
- Sufficient measures must be incorporated into project design and fully funded at the appropriate time to provide adaptation to and/or guard against potential damage from anticipated rises in sea levels.
- Minimize direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.
- Uses proposed must clearly be compatible with surrounding established and planned uses.
- Development must support the City’s vision for the district or area in which it is proposed to be located.
- Development must incorporate sustainability features, including features that minimize energy and water use, limit carbon emissions, provide opportunities for local power generation and food production, and provide areas for recreation.
- The development must provide a measurable and/or clearly identifiable community benefit in the form of affordable housing, jobs generation, available parkland or open space, environmental hazard protection, and/or other criteria established by the City.
- Require new development to pay its fair share of the cost of public facilities, services, and infrastructure, including but not limited to transportation, incremental water supply, sewer and wastewater treatment, solid waste, flood control and drainage, schools, fire and police protection, and parks and recreation. Allow for individual affordable housing projects to be exempted from the full cost of impact fees, subject to meeting specified criteria.
- Policy BE-22.3: Ensure that new development within San Carlos Airport airspace protection zones seeks input from the Federal Aviation Administration prior to approval.
- Policy BE-22.4: Consider creative ways to introduce new parkland in Redwood City, including acquiring flood zone property, using rooftops, and undergrounding existing surface parking to use the previous lots as parks.
- Policy BE-22.5: Track new residential and non-residential development and link the information to available water resources and the jobs: housing balance.

GOAL BE-23: Provide a balance of business opportunities and housing choices that make it easy for persons of all income ranges to live and work in Redwood City.

- Policy BE-23.1: Accommodate a range of land uses to meet the economic, environmental, and social needs of Redwood City.

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- Policy BE-23.2: Coordinate land use and transportation planning to ensure land use patterns and intensities can support a regionally integrated transportation network that includes bicycles and pedestrians, and provides equal access to jobs, recreation, quality education, childcare, and healthcare systems.
- Policy BE-23.3: Build and support a local economy that promotes commercial, office, and industrial businesses that provide employment for a broad spectrum of skilled and professional labor.

Redwood City Zoning Ordinance

The City regulates the type, location, density, and scale of residential development primarily through the Zoning Ordinance. Zoning regulations are designed to protect and promote the health, safety, and welfare of local residents, as well as implement the policies of the General Plan. The Ordinance sets forth the City's residential development standards, including density, height, lot coverage, and parking.

4.11.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to land use and planning if it would:

- a) Physically divide an established community; or
- b) 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.

4.11.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Land Use and Planning impacts.

4.11.5 Impacts and Mitigation Measures

This section analyzes potential land use impacts that would result from implementation of the Project and identifies mitigation measures to address these impacts, as needed.

Divide Established Communities

Impact LAND-1 – Would the Project physically divide an established community?

Analysis of Impacts

The physical division of an established community typically refers to the construction of a physical feature (such as a new freeway or other large transportation projects) or the removal of a means of access (such as a bridge) that would impede or restrict movement within a community. It also may refer to policies that limit or preclude access between adjacent areas or neighborhoods within

a city. The proposed Project does not include major circulation or infrastructure changes that would restrict access to any particular areas of the City.

Implementation of the proposed Project would result in the construction of additional residential units within the Planning Area. No major infrastructure or circulation changes are proposed as part of this Project; the potential impact would be considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Existing Plans, Policies or Regulations

Impact LAND-2 – Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulations adopted for the purpose of avoiding or mitigating an environmental effect?

Analysis of Impacts

This section includes a discussion of potential conflicts between the Project and applicable planning documents. It should be noted that policy conflicts do not, in and of themselves, constitute a significant environmental impact. However, a policy inconsistency is considered to be a significant adverse environmental impact when it is related to a policy adopted for the purpose of avoiding or mitigating an environmental effect and it is anticipated that 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.

General Plan and Zoning Ordinance

The Housing Element Update, Safety Element Update, and Environmental Justice goals, policies, and programs would be adopted as part of the General Plan and, consequently, would be generally considered consistent with those General Plan policies. The updated elements would comply with applicable State Planning Law requirements for these general plan elements, and the proposed housing sites identified within the Housing Element Update would allow the City to meet its RHNA as identified by ABAG.

Several zoning amendments are proposed to allow for an increase in residential development within the Planning Area. These zoning text and map amendments would include: rezoning a commercial office zoning district to mixed-use; increasing allowable densities and standalone residential building heights in mixed-use zoning districts; and making changes to development standards within the R-2 through R-5 zoning districts to allow for more housing development.

Future development of sites identified within the Housing Element Update would be required to be consistent with the amended General Plan and zoning designations, as well as applicable

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development standards. 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 sections of this EIR. Development associated with implementation of Housing Element Update would need to adhere to existing General Plan goals and policies. This would include Policy BE-22.2, which identifies performance criteria and standards for new development and addresses issues such as adequate water supply, access to public transit, required infrastructure, and environmental protection.

Future housing development associated with implementation of the proposed Project 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 development of housing projects are proposed, they would be reviewed for adherence to the General Plan and the applicable zoning regulations. The General Plan contains many policies, some of which may compete with each other. The Planning Commission and City Council, in deciding whether to approve a proposed project, would decide whether, on balance, a project is consistent with the General Plan. The proposed Project would not result in a significant environmental impact due to a conflict with the General Plan or zoning ordinance.

Plan Bay Area 2050

The proposed Project would be consistent with the growth projections included in the Plan Bay Area 2050. Throughout Plan Bay Area 2050, Growth Geographies are geographic areas used to guide where future growth in housing and jobs would be focused under the plan's strategies over the next 30 years. These geographies are identified for growth either by local jurisdictions or because of their proximity to transit or access to opportunity. 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.¹ There are High Resource Areas, Priority Development Areas, and Transit-Rich Areas Plan Bay Area 2050 growth geographies located within Redwood City. As the growth geographies are meant to encourage the development of housing in proximity to existing and future employment centers and/or public transit, housing developed within and in proximity to a growth area would contribute to meeting this objective.

The proposed housing sites would further new housing development in City in compliance with its RHNA, which would advance residential growth promoted in Plan Bay Area 2050. The Project is consistent with the RHNA and Plan Bay Area 2050.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

¹ Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050 Growth Geographies, <https://opendata.mtc.ca.gov/datasets/plan-bay-area-2050-growth-geographies/explore>

4.11.6 References

City of Redwood City. 2022. City of Redwood City, 2023-2031 Housing Element, HCD Review Draft. April 2022.

Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG). 2021. Plan Bay Area 2050 Growth Geographies. Web: <https://opendata.mtc.ca.gov/datasets/plan-bay-area-2050-growth-geographies/explore> [Accessed August 25, 2022].

Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG). 2021. Plan Bay Area 2050, May 26.

City of Redwood City. 2022. Redwood City Municode Library. Zoning Code. Web: https://library.municode.com/ca/redwood_city/codes/zoning_code [Accessed July 2022]

City of Redwood City. 2010. Redwood City General Plan Built Environment, Urban Form and Land Use. Web: <https://www.redwoodcity.org/home/showpublisheddocument/15378/637387076798700000> [Accessed July 2022].

City of Redwood City. 2022. Redwood City General Plan & Area-Specific Plans. Web: <https://www.redwoodcity.org/departments/community-development-department>. [Accessed July 2022].

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4.12 Mineral Resources

This EIR chapter provides information about mineral resources within the Planning Area, analyzes potential mineral resources impacts, and identifies mitigation measures, if required.

4.12.1 *Environmental Setting*

Redwood City is not in an area known to contain significant mineral resources, nor is it recognized by the General Plan as possessing important mineral resources. The California Division of Mines and Geology (CDMG) classifies land within the Planning Area according to the presence or absence of significant sand and gravel deposits suitable for use in construction-grade aggregate. The land classification is MRZ-4, meaning there is inadequate information available for assignment to any other zone.

According to the California Department of Conservation Geologic Energy Management Division's (CalGEM) online mapping application Well Finder, there are no active or idle oil and gas wells within the Planning Area.

Because mineral, gas, and oil resources are absent from Redwood City, the project will not result in the loss of known mineral resource of value to the region or state, nor would it result in the loss of locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. No further analysis of this issue will appear in this EIR.

4.12.2 *References*

California Department of Conservation. 2020. Mineral Classifications. Department of Conservation Mineral Land Classification. Web: <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc> [Accessed August 2022]

_____. 2022. Oil and Gas Wells. Department of Conservation Wellfinder. Web: <https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-122.26016/37.44787/12> [Accessed August 2022]

_____. 2022. SMARA Mineral Land Classification. Department of Conservation. Web: <https://www.conservation.ca.gov/cgs/minerals/mineral-land-classification-smara> [Accessed August 2022]

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4.13 Noise

This EIR chapter provides background information on the nature of sound and vibration transmission; describes the existing noise environment in the Planning Area; summarizes applicable noise guidelines, standards, and regulations; and evaluates potential noise and vibration impacts that could result from the implementation the Project. Where necessary, this section includes mitigation measures that would reduce noise and vibration impacts associated with the Project.

4.13.1 *Fundamentals of Environmental Acoustics*

Noise is generally defined as unwanted sound and is widely recognized as a form of environmental degradation. Airborne sound is the rapid fluctuation of air pressure above and below atmospheric pressure. The frequency (pitch), amplitude (intensity or loudness), and duration of a sound all contribute to the effect on a listener or receptor and whether or not the receptor perceives the sound as “noisy” or annoying.

Pitch is the height or depth of a tone or sound and depends on the frequency of the vibrations by which it is produced. Sound frequency is expressed in cycles per second, or Hertz (Hz). Humans generally hear sounds with frequencies between 20 and 20,000 Hz and perceive higher frequency sounds, or high pitch noise, as louder than low-frequency sounds or sounds low in pitch. Sound intensity or loudness is a function of the amplitude of the pressure wave generated by a noise source combined with the reception characteristics of the human ear. Atmospheric factors and obstructions between the noise source and receptor also affect the loudness perceived by the receptor. Sound pressure levels are typically expressed on a logarithmic scale in decibels (dB). A dB is a unit of measurement that indicates the relative amplitude (i.e., intensity or loudness) of a sound, with 0 dB corresponding roughly to the threshold of hearing for the healthy, unimpaired human ear.

Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense, and so on. In general, there is a relationship between a sound's subjective noisiness or loudness and its intensity, with each 10 dB increase in sound level perceived as approximately a doubling of loudness. Due to the logarithmic basis, decibels cannot be directly added or subtracted using common arithmetic operations. Instead, the combined sound level from two or more sources must be combined logarithmically. For example, if one noise source produces a sound power level of 50 dBA, two of the same sources would combine to produce 53 dB. In general, when one source is 10 dB higher than another source, the quieter source does not add to the sound levels produced by the louder source because the louder source contains ten times more sound energy than the quieter source.

Sound Characterization

Although humans generally can hear frequencies between 20 and 20,000 Hz, most of the sounds humans are normally exposed to do not consist of a single frequency but rather a broad range of

frequencies perceived differently by the human ear. Humans are generally most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. Therefore, instruments used to measure sound include an electrical filter that enables the instrument's detectors to replicate human hearing. This filter, known as the "A-weighting" or "A-weighted sound level," filters low and very high frequencies, giving greater weight to the frequencies of sound to which the human ear is typically most sensitive. Most environmental measurements are reported in dBA, meaning decibels on the A-scale. See Table 4.13-1 for a list of common noise sources and their A-weighted noise levels.

Sound levels are usually not steady and vary over time. Therefore, a method for describing either the average character of the sound or the statistical behavior of the variations over a period of time is necessary. The continuous equivalent noise level (L_{eq}) descriptor is used to represent the sound's average character over time. The L_{eq} represents the steady-state noise level with the same acoustical energy as the time-varying noise measured over a given time period. L_{eq} is useful for evaluating shorter time periods over the course of a day. The most common L_{eq} averaging period is hourly. However, L_{eq} can describe any series of noise events over a given time period.

Variable noise levels are the values exceeded for a portion of the measured time period. Thus, the L_{01} , L_{10} , L_{50} , and L_{90} descriptors represent the sound levels exceeded 1%, 10%, 50%, and 90% of the time the measurement was performed. The L_{90} value usually corresponds to the background sound level at the measurement location.

When considering environmental noise, it is important to account for people's different responses to daytime and nighttime noise. In general, during the nighttime, background noise levels are generally quieter than during the daytime but also more noticeable because household noise has decreased as people begin to retire and sleep. Noise exposure over the course of an entire day is described by the day/night average sound level, DNL (or L_{dn}), and the community noise equivalent level, or CNEL, descriptors. Both descriptors represent the 24-hour noise exposure in a community or area. For DNL, the 24-hour day is divided into a 15-hour daytime period (7 AM to 10 PM) and a 9-hour nighttime period (10 PM to 7 AM), and a 10 dB "penalty" is added to measure nighttime noise levels when calculating the 24-hour average noise level. For example, a 45 dBA nighttime sound level would contribute as much to the overall day-night average as a 55 dBA daytime sound level. The CNEL descriptor is similar to DNL, except that it includes an additional 5 dBA penalty for noise events that occur during the evening time period (7 PM to 10 PM). The artificial penalties imposed during DNL and CNEL calculations are intended to account for a receptor's increased sensitivity to noise levels during quieter nighttime periods.

**Table 4.13-1:
Typical Noise Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet flyover at 1,000 feet	105	
	100	
Gas lawn mower at 3 feet	95	
	90	
Diesel truck at 50 feet at 50 mph	85	Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noise urban area, daytime	75	
Gas lawnmower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area	65	Normal speech at 3 feet
Heavy traffic at 300 feet	60	
	55	Large business office
Quiet urban daytime	50	Dishwasher next room
	45	
Quiet urban nighttime	40	Theater, large conference room
Quiet suburban nighttime	35	
	30	Library
Quite rural nighttime	25	Bedroom at night
	20	
	15	Broadcast/recording studio
	10	
	5	
Typical threshold of human hearing	0	Typical threshold of human hearing

Source: Caltrans, 2013

Sound Propagation

The energy contained in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out and travels away from the noise-generating source. The strength of the source is often characterized by its “sound power level.” Sound power level is independent of the distance a receiver is from the source and is a property of the source alone. Knowing the sound power level of an idealized source and its distance from a receiver, the sound pressure level at a specific point (e.g., a property line or a receiver) can be calculated based on geometrical spreading and attenuation (noise reduction) as a result of distance and environmental factors, such as ground cover (asphalt vs. grass or trees), atmospheric absorption, and shielding by terrain or barriers.

For an ideal “point” source of sound, such as mechanical equipment, the energy in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out in a spherical pattern and travels away from the point source. Theoretically, the sound level attenuates, or decreases, by 6 dB with each doubling of distance from the point source. In contrast, a “line” source of sound, such as roadway traffic or a rail line, spreads out in a cylindrical pattern and theoretically attenuates by 3 dB with each doubling of distance from the line source; however, the sound level at a receptor location can be modified further by additional factors. The first is the presence of a reflecting plane such as the ground. A reflecting plane typically increases A-weighted sound pressure levels by 3 dB for hard ground. If the surface absorbs some of the reflected sound, this increase will be less than 3 dB. Other factors affecting the predicted sound pressure level are often lumped together into a term called “excess attenuation.” Excess attenuation is the amount of additional attenuation that occurs beyond simple spherical or cylindrical spreading. For sound propagation outdoors, there is almost always excess attenuation, producing lower levels than what would be predicted by spherical or cylindrical spreading. Some examples include attenuation by sound absorption in air; attenuation by barriers; attenuation by rain, sleet, snow, or fog; attenuation by grass, shrubbery, and trees; and attenuation from shadow zones created by wind and temperature gradients. Under certain meteorological conditions, like fog and low-level clouds, some of these excess attenuation mechanisms are reduced or eliminated due to noise reflection.

Noise Effects

Noise effects on human beings are generally categorized as:

- Subjective effects of annoyance, nuisance, and/or dissatisfaction
- Interference with activities such as speech, sleep, learning, or relaxing
- Physiological effects such as startling and hearing loss

Most environmental noise levels produce subjective or interference effects; physiological effects are usually limited to high noise environments such as industrial manufacturing facilities or airports.

Predicting the subjective and interference effects of noise is difficult due to the wide variation in individual thresholds of annoyance and past experiences with noise; however, an accepted method to determine a person’s subjective reaction to a new noise source is to compare it with the existing environment without the noise source, or the “ambient” noise environment. In general, the more a new noise source exceeds the ambient noise level, the more likely it is to be considered annoying and to disturb normal activities.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness that would almost certainly cause an adverse response from community noise receptors.

Groundborne Vibration and Noise

Vibration is the movement of particles within a medium or object such as the ground or a building. Vibration may be caused by natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or humans (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources are usually characterized as continuous, such as factory machinery, or transient, such as explosions.

As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency; however, unlike airborne sound, there is no standard way of measuring and reporting amplitude. Vibration amplitudes can be expressed in terms of velocity (inches per second) or discussed in dB units in order to compress the range of numbers required to describe vibration. Vibration impacts to buildings are usually discussed in terms of peak particle velocity (PPV) in inches per second (in/sec). PPV represents the maximum instantaneous positive or negative peak of a vibration signal and is most appropriate for evaluating the potential for building damage. Vibration can impact people, structures, and sensitive equipment. The primary concern related to vibration and people is the potential to annoy those working and residing in the area. Vibration with high enough amplitudes can damage structures (such as crack plaster or destroy windows). Ground-borne vibration can also disrupt the use of sensitive medical and scientific instruments, such as electron microscopes.

Common sources of vibration within communities include construction activities and railroads. Ground-borne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used.

Groundborne noise is noise generated by vibrating building surfaces such as floors, walls, and ceilings that radiate noise inside buildings subjected to an external source of vibration. The vibration level, the acoustic radiation of the vibrating element, and the acoustical absorption of the room are all factors that affect potential ground-borne noise generation.

4.13.2 Environmental Setting

The City's existing General Plan Noise Element identifies the primary contributors to the City's noise environment as coming from motor vehicles and aircraft overflights. Other sources of community noise include rail activities and commercial and industrial land uses. This description is still accurate; the City's Existing Conditions Atlas prepared for the Project identifies roadway traffic noise levels as an ongoing concern in the Planning Area.

The principal noise source within the Planning Area is from vehicular traffic, including automobiles, trucks, buses, and motorcycles. The level of noise generated by vehicular traffic generally varies according to the volume of traffic, the percentage of trucks, and average traffic speed. One rail line operated by the Caltrain runs through the City. The 2030 Projected Noise Contours from the existing General Plan indicate that the Project has proposed residential developments within the railway's 65 CNEL contour.

The closest airport to the Planning Area is San Carlos Airport. The Planning Area is not located in any noise contour zone associated with this airport.

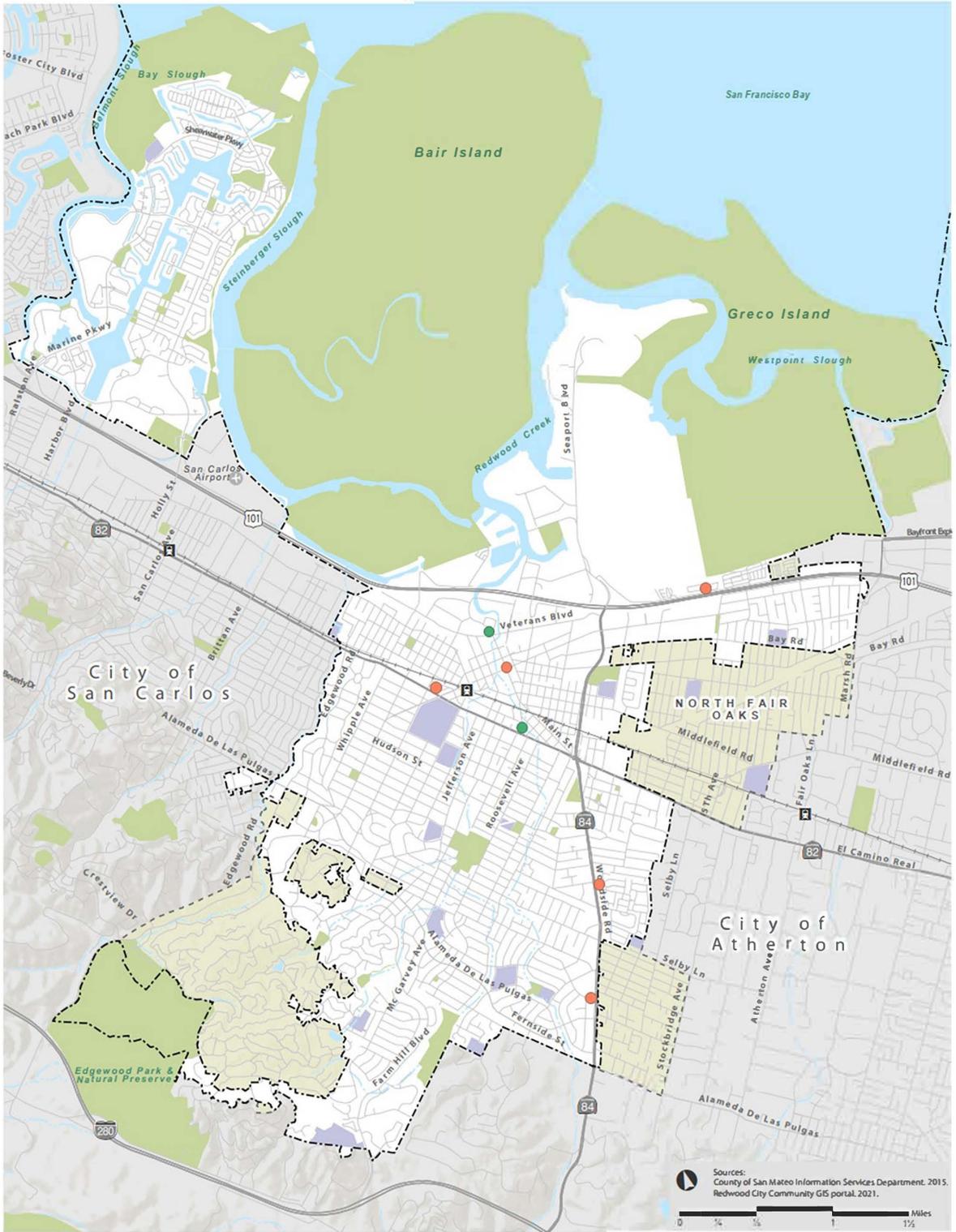
Measured Ambient Noise Levels

The existing ambient noise levels in the Planning Area were monitored in July 2022 (MD 2022; see Appendix E). The ambient noise monitoring conducted for this EIR included two long-term (LT) and five short-term (ST) measurements at locations selected to:

- Provide direct observations of existing noise sources in and within the vicinity of the Planning Area;
- Determine ambient noise levels in and within the vicinity of the Planning Area; and
- Evaluate potential noise levels at nearby sensitive receptors (see “Noise Sensitive Receptors” below).

The ambient noise monitoring locations are shown in Figure 4.13-1 and described below.

- **Location LT-1** was at the northwest corner of the intersection of Main Street and Veterans Boulevard. This location was approximately 86 feet from the centerline of Veterans Boulevard and 74 feet from the centerline of Main Street. The ambient noise levels measured at location LT-1 are considered representative of background noise levels along Veterans Boulevard in commercial portions of the Planning Area.
- **Location LT-2** was at the intersection of El Camino Real and Maple Street. This location was approximately 54 feet from the centerline of El Camino Real. The ambient noise levels measured at LT-2 are considered representative of background daytime noise in multifamily residential areas located along major arterial roadways.
- **Location ST-1** was located along E Bayshore Road, north of U.S. 101. The ambient noise levels measured at ST-1 are considered representative of background daytime noise levels along the walled portion of the freeway.
- **Location ST-2** was located on the corner of Main Street and Broadway. This location was approximately 25 feet from the centerline of Main Street. The ambient noise levels measured at ST-2 are considered representative of background daytime noise levels in the commercial downtown area.
- **Location ST-3** was at the intersection of El Camino Real and Broadway. This location was approximately 50 feet from the centerline of El Camino Real and Broadway. The ambient noise levels measured at ST-3 are considered representative of background daytime noise of commercial properties along El Camino Real.



- Base Map Features**
- Redwood City Boundary
 - Sphere of Influence Boundary
 - Railway and Stations
 - San Mateo County Streets
 - US Highway 101
 - Channel, Rivers, and Streams
 - Bay, Harbor, and Sloughs
 - Open Space and Parks
 - Schools

- Short-term Monitoring Location
- Long-term Monitoring Location

Figure 4.13-1: Ambient Noise Monitoring Locations

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- **Location ST-3** was at the intersection of El Camino Real and Broadway. This location was approximately 50 feet from the centerline of El Camino Real and Broadway. The ambient noise levels measured at ST-3 are considered representative of background daytime noise of commercial properties along El Camino Real.
- **Location ST-4** was near the intersection of Woodside Road and Union Avenue. This location was approximately 55 feet from the centerline of Woodside Road. The ambient noise levels measured at ST-4 are considered representative of background daytime noise levels in multifamily residential areas of the Planning Area near arterial roadways.
- **Location ST-5** was at 1750 Woodside Road. This location was approximately 90 feet from the centerline of Woodside Road. The ambient noise levels measured at ST-5 are considered representative of background daytime noise levels for single-family residences near arterial roadways.

Based on observations made during the ambient noise monitoring, the existing noise environment in the Planning Area consists primarily of localized and regional transportation noise sources. Away from major arterial and collector roads, local residential/commercial land use operations are the primary contributors to the local ambient noise environment. Table 4.13-2 summarizes the results of the long-term ambient noise monitoring and Table 4.13-3 summarizes the results of the short-term ambient noise monitoring conducted for this EIR.

**Table 4.13-2:
Existing Ambient Noise Levels (dBA) in the Planning Area**

Day/Site	Start Time	Duration	Measured Noise Level (dBA)			
			Daytime Leq	Evening Leq	Nighttime Leq	CNEL
Thursday-Friday, July 21-22, 2022						
LT-1	9 PM-9 PM	24-hours	68.0	66.3	61.5	70.1
LT-2	10 PM-10PM	24-hours	65.5	71.0	73.4	74.9
Source: MD Acoustics, LLC (see Appendix E)						

**Table 4.13-3:
Existing Ambient Noise Levels (dBA) in the Planning Area**

Day/Site	Start Time	Duration	Measured Noise Level (dBA)							
			Leq	Lmin	Lmax	L2	L8	L25	L50	L90
Friday, July 22, 2022										
ST-1	12:58 PM	10-minutes	65.3	58.5	82.9	72.7	67.5	64.2	62.3	60.2
ST-2	12:19 PM	10-minutes	64.7	54.8	76.5	73.8	69.0	64.1	60.8	56.8
ST-3	11:51 AM	10-minutes	68.8	54.7	79.8	74.2	72.1	69.9	67.6	60.8

**Table 4.13-3
Existing Ambient Noise Levels (dBA) in the Planning Area**

Day/Site	Start Time	Duration	Measured Noise Level (dBA)							
			L _{eq}	L _{min}	L _{max}	L ₂	L ₈	L ₂₅	L ₅₀	L ₉₀
ST-4	11:17 AM	10-minutes	71.9	54.7	88.2	78.7	74.8	72.1	69.0	59.4
ST-5	5:17 PM	10-minutes	58.8	46.3	71.0	64.2	61.1	59.5	58.0	53.3

Source: MD Acoustics, LLC (see Appendix E)

As shown in Table 4.13-2 and Table 4.13-3, daytime noise levels were lower in the primarily residential areas (LT-2, ST-1, ST-2, and ST-5) and higher near the mixed-use and commercial areas (LT-1, ST-3, and ST-4). Measured noise levels were the highest close to major arterials such as Woodside Road and El Camino Real.

Existing 2020 and Cumulative 2040 Traffic Noise Levels

Existing 2020 traffic noise levels were computed using the U.S. Department of Transportation Federal Highway Administration’s (FHWA) Traffic Noise Model (TNM) methodology. The model uses traffic volume, vehicle mix, vehicle speed, roadway geometry, and other variables to compute 24-hour traffic noise levels at user-defined receptor distances from the roadway center. The TNM modeling conducted for this EIR incorporates worst-case assumptions about motor vehicle traffic and noise levels; specifically, calculations are based on “hard” site conditions and do not incorporate any natural or artificial shielding, with the exception of U.S. 101, which includes a noise barrier.

Information on existing 2020 average daily traffic volumes was obtained from the traffic impact analysis (TIA) prepared for the Project (Fehr and Peers 2022). Traffic noise levels were estimated for typical daytime (7 AM to 7 PM), evening (7 PM to 10 PM), and nighttime (10 PM to 7 AM) hours using typical hourly distributions within California cities. The mix of automobiles, medium trucks, and heavy-duty trucks were given by Fehr and Peers and 2020 Caltrans Truck volumes. Roadway segments were modeled as straight-line segments without any flow controls. Modeled noise levels, therefore, represent free-flow traffic conditions. Vehicles were assumed to travel the posted speed limit on each modeled roadway segment.

The TIA prepared for the Project also includes an analysis of cumulative 2040 traffic conditions that would occur in based on continued implementation of the City’s current General Plan at the land use development intensities permitted by the current General Plan. The future 2040 baseline cumulative traffic noise levels were estimated using the same methodology as described for the existing traffic noise analysis. Traffic noise levels were computed using TNM methodology and the same roadway geometry factors assumed for existing traffic noise levels.

Modeled traffic noise levels for existing 2020 and cumulative 2040 traffic noise levels are shown in Table 4.13-4. Existing traffic noise contours are shown in Figure 4.13-2. Please refer to Appendix E for detailed information on existing traffic noise modeling assumptions.

**Table 4.13-4:
Existing and Cumulative Traffic Noise Levels**

Road / Segment	Existing (2020)		Cumulative (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Redwood Shores Pkwy						
Bridge Pkwy to Shoreline Dr	12,604	64.2	13,499	64.5	895	0.3
Shoreline Dr to Twin Dolphin Dr	23,432	68.6	31,210	69.9	7,778	1.3
Twin Dolphin Dr to U.S. 101	24,325	69.6	32,606	70.9	8,281	1.3
U.S. 101						
Whipple Ave to Woodside Rd	236,162	82.9	263,574	83.4	27,412	0.5
Woodside Rd to Marsh Rd	228,896	82.8	263,138	83.4	34,242	0.6
Veterans Blvd						
Whipple Ave to Brewster Ave	49,200	68.7	46,639	68.5	-2,561	-0.2
Brewster Ave to Jefferson Ave	39,368	67.8	38,563	67.7	-805	-0.1
Jefferson Ave to Main St	12,527	62.8	19,338	64.7	6,811	1.9
Main St to Maple St	11,196	61.8	24,585	65.2	13,389	3.4
Maple St to Chestnut St	9,208	61.0	25,035	65.4	15,827	4.4
Chestnut St to Woodside Rd	9,031	60.2	24,505	64.6	15,474	4.4
Winslow St						
Whipple Ave to Hopkins Ave	2,535	54.7	1,746	53.1	-789	-1.6
Hopkins Ave to Brewster Ave	217	44.0	1,547	52.6	1,330	8.6
Brewster Ave to Arguello St	717	49.2	1,062	50.9	345	1.7
El Camino Real						
Whipple Ave to Hopkins Ave	24,717	70.0	41,024	72.2	16,307	2.2
Hopkins Ave to Brewster Ave	22,235	69.5	28,266	70.6	6,031	1.1
Brewster Ave to Broadway	21,677	69.5	25,114	70.2	3,437	0.7
Broadway to James Ave	20,026	69.4	22,093	69.8	2,067	0.4
James Ave to Jefferson Ave	22,543	66.4	23,452	66.6	909	0.2
Jefferson Ave to Maple St	41,313	72.2	51,835	73.2	10,522	1.0
Maple St to Cedar St	41,923	72.3	53,550	73.4	11,627	1.1
Cedar St to Roosevelt Ave	41,963	72.3	53,545	73.3	11,582	1.0
Roosevelt Ave to Pine St	42,303	72.3	54,291	73.4	11,988	1.1
Pine St to Main St	45,362	72.8	52,713	73.4	7,351	0.6
Main St to Woodside Rd (SR-84)	45,371	72.5	55,879	73.4	10,508	0.9
Woodside Rd to Charter St	55,614	74.3	72,120	75.5	16,506	1.2

**Table 4.13-4:
Existing and Cumulative Traffic Noise Levels**

Road / Segment	Existing (2020)		Cumulative (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Charter St to Center St	55,590	74.3	72,169	75.5	16,579	1.2
Center St to Northumberland Ave	50,242	73.9	66,515	75.1	16,273	1.2
Northumberland Ave to Oakwood Dr	50,242	73.3	66,513	74.5	16,271	1.2
Oakwood Dr to Selby Ln	47,698	73.4	63,084	74.6	15,386	1.2
Middlefield Rd						
Main St to Chestnut St	7,315	59.2	11,932	61.4	4,617	2.2
Chestnut St to Woodside Rd	7,831	59.5	12,986	61.7	5,155	2.2
Whipple Ave						
Veterans Blvd to Industrial Way	35,615	66.8	38,167	67.1	2,552	0.3
Industrial Way to Lenolt St	27,993	65.2	36,084	66.3	8,091	1.1
Lenolt St to Arguello St	22,944	64.3	32,856	65.9	9,912	1.6
Arguello St to Stafford St	22,945	64.7	34,215	66.5	11,270	1.8
Stafford St to El Camino Real	27,347	66.3	35,970	67.5	8,623	1.2
Brewster Ave						
Veterans Blvd to Arguello St	827	51.8	826	51.8	-1	0.0
Broadway						
El Camino Real to Perry St	7,096	59.1	13,046	61.7	5,950	2.6
Perry St to Arguello St	8,061	59.7	13,048	61.8	4,987	2.1
Arguello St to Winslow St	8,061	59.7	12,275	61.5	4,214	1.8
Winslow St to Jefferson Ave	1,825	53.2	3,085	55.5	1,260	2.3
Jefferson Ave to Main St	7,712	59.4	15,629	62.5	7,917	3.1
Main St to Spring St	10,171	60.6	18,749	63.3	8,578	2.7
Spring St to Maple St	8,114	60.1	15,423	62.9	7,309	2.8
Maple St to Beech St	9,111	60.3	15,706	62.7	6,595	2.4
Beech St to Chestnut St	11,692	61.4	19,547	63.6	7,855	2.2
Chestnut St to Woodside Rd	13,320	61.9	21,330	63.9	8,010	2.0
Maple St						
Veterans Blvd to Broadway	1,054	48.4	703	46.6	-351	-1.8
Chestnut St						
Veterans Blvd to Broadway	177	43.5	572	48.6	395	5.1

**Table 4.13-4:
Existing and Cumulative Traffic Noise Levels**

Road / Segment	Existing (2020)		Cumulative (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Broadway to Middlefield Rd	1,875	53.4	2,366	54.4	491	1.0
Middlefield Rd to Main St	145	42.2	305	45.5	160	3.3
Main St						
Veterans Blvd to Middlefield Rd	5,214	57.8	9,398	60.3	4,184	2.5
Middlefield Rd to El Camino Real	2,766	55.0	3,283	55.8	517	0.8
Woodside Rd (SR-84)						
U.S. 101 to Broadway	27,423	71.1	43,616	73.1	16,193	2.0
Broadway to Bay Rd	50,710	73.9	61,236	74.7	10,526	0.8
Bay Rd to Spring St	50,709	73.6	59,778	74.3	9,069	0.7
Spring St to Middlefield Rd	40,417	72.3	49,802	73.2	9,385	0.9
Middlefield Rd to El Camino Real	43,015	72.5	52,552	73.4	9,537	0.9
El Camino Real to Hess Rd	38,136	72.0	41,231	72.3	3,095	0.3
Hess Rd to Hudson St	40,507	72.1	44,378	72.5	3,871	0.4
Hudson St to Gordon St/Orchard Ave	40,797	72.3	44,633	72.7	3,836	0.4
Gordon St/Orchard Ave to Kentfield Ave	34,704	71.4	38,584	71.9	3,880	0.5
Kentfield Ave to Massachusetts Ave	29,274	72.2	41,099	73.7	11,825	1.5
Massachusetts Ave to Sequoia Ave	26,508	72.8	35,999	74.1	9,491	1.3
Sequoia Ave to Alameda Dr	23,146	71.2	28,335	72.1	5,189	0.9
Source: MD, 2022 (see Appendix E)						
CNEL values are as estimated 50 feet from the road center except for U.S. 101 (CNEL at 100 feet)						

03142201_Redwood City EIR Noise
Existing Traffic Noise Level Contours
dBA, CNEL

Levels in dB(A)

	< 55
	55 - 60
	60 - 65
	65 - 70
	70 - 75
	>= 75

Signs and symbols

 Road

Length scale 1:2800



Figure 4.13-2: Existing Traffic Noise Contours (2020)

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The results of the traffic noise modeling indicate that existing traffic noise levels within the Planning Area are highest along U.S. 101, Woodside Road, and El Camino Real. Specifically, the modeling shows:

- Existing traffic noise levels along U.S. 101 are above 80 CNEL at a distance of 100 feet from the center of the roadway in areas without walls. Residential buildings are shielded and therefore reduced to about 70 dBA CNEL. The estimated existing traffic noise levels exceed the City’s conditionally acceptable noise exposure level for commercial land uses (75 CNEL) contained in the City’s existing General Plan and in some places exceed the City’s conditionally acceptable noise exposure level for high-density residential land uses (70 CNEL).
- Existing traffic noise levels along El Camino Real are estimated to be approximately 70 to 74 CNEL at a distance of 50 feet from the center of the roadway. Mixed-use and school land uses are present along this segment of El Camino Real. The estimated existing traffic noise levels exceed the City’s conditionally acceptable noise exposure level for schools (65 CNEL) but are within the City’s conditionally acceptable noise exposure level for mixed-use land uses (75 CNEL). Cumulative traffic noise levels are estimated to increase by up to 2 decibels. The cumulative 2040 condition exceeds conditionally acceptable noise exposure levels for mixed-use land uses (75 CNEL) along Woodside Road to Northumberland Avenue.
- Existing traffic noise levels along Woodside Road are estimated to be approximately 71-74 CNEL at a distance of 50 feet from the center of the roadway. A mix of industrial, mixed-use, parks (public facilities), open space, commercial office, commercial neighborhood, and low, medium, and high residential land uses are present along Woodside Road. The estimated existing traffic noise levels exceed the City’s conditionally acceptable noise exposure level for public facilities (65 CNEL), low density residential land uses (60 CNEL), medium density land uses (65 CNEL) and high density land uses (70 CNEL) contained in the City’s existing General Plan but are within the City’s conditionally acceptable noise exposure level for office and neighborhood commercial land uses (75 CNEL) and open space (75 CNEL). Cumulative traffic noise levels are estimated to increase by up to 2 dBA but remain within current noise exposure levels.

All other segments are within conditionally acceptable limits for the adjacent land uses.

Other Non-Transportation Noise Sources

Non-transportation sources also contribute to the Planning Area’s existing noise environment. Commercial and industrial land uses located throughout the Planning Area (but primarily along key roadways like U.S. 101, El Camino Real, and Woodside Road), schools and outdoor park and recreation facilities, and residential land uses generate noise from daily operations of landscaping equipment, stationary sources such as heating, ventilation, and air conditioning (HVAC) equipment, business deliveries, solid waste pickup services, etc. Such sources are considered local source of noise that only influence the immediate surroundings.

Noise Sensitive Receptors

Noise-sensitive receptors are buildings or areas where unwanted sound or increases in sound may have an adverse effect on people or land uses. Residential areas, motels and hotels, hospitals and health care facilities, school facilities, and parks are examples of noise receptors that could be sensitive to changes in existing environmental noise levels. In general, potential noise-sensitive receptors within the Planning Area include:

- Existing low density, medium density, high density, and mixed-use residential receptors.
- Existing schools and education or institutional facilities.
- Existing overnight/long-term medical care facilities.
- Existing neighborhood, community, and other parks.

In addition to existing sensitive noise receptors, the proposed Project would increase development density in the Planning Area and would provide for new residential and mixed use residential and commercial opportunities.

4.13.3 Regulatory Framework

Federal

Federal Transit Administration

No federal regulations apply to noise or vibration from the proposed Project, but the FTA’s 2018 *Transit Noise and Vibration Impact Assessment Manual* document sets ground-borne vibration annoyance criteria for general assessments. The criteria vary by the type of building being subjected to the vibrations, and the overall number of vibration events occurring each day. Category 1 buildings are considered buildings where vibration would interfere with operation, even at levels that are below human detection. These include buildings with sensitive equipment, such as research facilities and recording studios. Category 2 buildings include residential land and buildings where people sleep, such as hotels and hospitals. Category 3 buildings consist of institutional land uses with primarily daytime uses. The FTA standards vary for “frequent” events (occurring more than 70 times per day, such as a rapid transit project), “occasional” events (occurring between 30 to 70 times per day), and “infrequent” events (occurring less than 30 times per day). The FTA’s vibration annoyance criteria are summarized in Table 4.13-5.

**Table 4.13-5:
FTA Ground-Borne Vibration Impact Criteria for General Assessment**

Land Use Category/Type	Impact Level (Velocity Decibels)		
	Frequent Events	Occasional Events	Infrequent Events
Category 1 – Buildings with sensitive equipment	65 VdB	65 VdB	65 VdB
Category 2 – Buildings where people sleep	72 VdB	75 VdB	80 VdB
Category 3 – Institutional buildings	75 VdB	78 VdB	83 VdB
Source: FTA 2018			

State

California Building Standards Code

The California Building Standards Code is contained in Title 24 of the California Code of Regulations and consists of 11 different parts that sets forth various construction and building requirements. Part 2, California Building Code, Section 1207, Sound Transmission, establishes sound transmission standards for interior walls, partitions, and floor/ceiling assemblies. Specifically, Section 1207.4 establishes that interior noise levels attributable to exterior noise sources shall not exceed 45 dBA DNL or CNEL (as set by the local General Plan) in any habitable room.

California Green Building Standards Code

The California Green Building Standards Code is Part 11 to the California Building Standards Code. Chapter 5, Nonresidential Mandatory Standards, Section 5.507 establishes the following requirements for non-residential development that may be applicable to the Project.

- Section 5.507.4.1.1 sets forth that buildings exposed to a noise level of 65 dBA Leq (1-hour) during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composting sound transmission class (STC) rating of at least 45 (or an outdoor indoor transmission class [OITC] of 35), with exterior windows of a minimum STC of 40.
- Section 5.507.4.2 sets forth that wall and roof assemblies for buildings exposed to a 65 dBA Leq pursuant to Section 5.507.4.1.1 shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed 50 dBA Leq in occupied areas during any hour of operation. This requirement shall be documented by an acoustical analysis documenting interior sound levels prepared by personnel approved by the architect or engineer of record.

Caltrans

The California Department of Transportation’s (Caltrans) Transportation and Construction Vibration Guidance Manual provides a summary of vibration criteria that have been reported by researchers, organizations, and governmental agencies (Caltrans 2013b). Chapters 6 and 7 of the aforementioned guidance manual summarizes vibration detection and annoyance criteria from various agencies and provides Caltrans’ recommended guidelines and thresholds for evaluating potential vibration impacts on buildings and humans from transportation and construction projects. These thresholds are summarized in Table 4.13-6 and Table 4.13-7.

**Table 4.13-6:
Caltrans’ Vibration Threshold Criteria for Building Damage**

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Historic and some older buildings	0.50	0.12 to 0.2
Older residential structures	0.50	0.30

**Table 4.13-6:
Caltrans’ Vibration Threshold Criteria for Building Damage**

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans 2020		

**Table 4.13-7:
Caltrans’ Vibration Threshold Criteria for Human Response**

Human Response	Maximum PPV (in/sec)	
	Transient	Continuous
Slightly perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severe/Disturbing	2.0	0.7 (at 2 Hz) to 0.17 (at 20 Hz)
Very disturbing	--	3.6 (at 2 Hz) to 0.4 (at 20 Hz)
Source: Caltrans 2020		

California General Plan Guidelines

California Office of Planning and Research (OPR) publishes the State of California General Plan Guidelines, which provide guidance for the acceptability of projects within specific community noise levels. The guidelines also present adjustment factors that may be used to arrive at noise-acceptability standards that reflect the particular community’s noise-control goals, sensitivity to noise, and assessment of the relative importance of noise issues. OPR’s base guidelines for establishing land use patterns that minimizes exposure of community residents to excessive noise are presented in Table 4.13-8 (OPR 2017).

**Table 4.13-8:
OPR General Plan Guidelines for Community Noise Exposure**

Land Use Category	Community Noise Exposure Limit (CNEL or DNL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low-Density Single-Family, Duplex, Mobile Homes	60	70	75	75+
Residential – Multi-Family	65	70	75	75+
Transient Lodging – Motels, Hotels	65	70	80	80+

**Table 4.13-8:
OPR General Plan Guidelines for Community Noise Exposure**

Land Use Category	Community Noise Exposure Limit (CNEL or DNL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	70	70	80	80+
Auditoriums, Concert Halls, Amphitheaters	N/A	70	N/A	70+
Sports Arenas, Outdoor Spectator Sports	N/A	N/A	75	75+
Playgrounds, Neighborhood Parks	70	70	75	75+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	80	80+
Office Buildings, Business Commercial and Professional	70	77.5	77.5+	N/A
Industrial, Manufacturing, Utilities, Agriculture	75	80	80+	N/A

Source: OPR, 2017, Appendix E, Figure 2

Local

Redwood City General Plan

The City's existing 2010 General Plan Public Safety Element includes the following noise-related goals and policies.

Goal PS-13: Minimize the impact of point source noise and ambient noise levels throughout the community.

- Policy PS-13.1: Modify noise level standards as appropriate for all land uses.
- Policy PS-13.2: Revise the City's Noise Ordinance to address ongoing noise issues by using quantitative noise limits where appropriate and establishing comprehensive noise control measures.
- Policy PS-13.3: Consider noise impacts as part of the development review process, particularly the location of parking, ingress/egress/loading, and refuse collection areas relative to surrounding residential development and other noise-sensitive land uses.
- Policy PS-13.4: In accordance with the Municipal Code and noise standards contained in the General Plan, strive to provide a noise environment that is at an acceptable noise level near schools, hospitals, and other noise sensitive areas
- Policy PS-13.5: Limit the hours of operation at all noise generation sources that are adjacent to noise sensitive areas, wherever practical.

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- Policy PS-13.6: Require all exterior noise sources (construction operations, air compressors, pumps, fans, and leaf blowers) to use available noise suppressions devices and techniques to bring exterior noise down to acceptable levels that are compatible with adjacent land uses.
- Policy PS-13.7: Require that mixed-use structures be designed to account for noise from adjacent uses, and minimize transfer of noise and vibration from commercial/retail to residential use.
- Policy PS-13.8: Implement appropriate standard construction noise controls for all construction projects.
- Policy PS-13.9: Require noise created by new non-transportation noise sources to be mitigated so as not to exceed acceptable interior and exterior noise level standards.
- Policy PS-13.10: Do not allow new residential or other noise sensitive land use development in noise impacted areas unless effective mitigation measures are incorporated into the project design to reduce outdoor activity area noise levels.

Goal 2: Minimize the impacts of transportation-related noise.

- Policy PS-14.1: Modify noise level standards as appropriate for all land uses. Consult with responsible federal and State agencies to minimize the impact of transportation-related noise, including noise associated with freeways, major arterials, rail lines, and airports.
- Policy PS-14.2: Require that proposed land use policy actions (such as a General Plan amendment, Zoning amendment, or a Precise Plan) within the identified aircraft noise contours for San Carlos Airport are:
 - Reviewed by the Airport Land Use Commission (C/CAG Board)
 - Mitigated for potential noise impacts, as appropriate to applicable City noise standards, by the developer
 - Consistent with the Aircraft Noise/Land Use Compatibility Standards in the San Mateo County Airport Land Use Plan.
- Policy PS-14.3: Continue to consult with San Mateo County Department of Public Works Airport Division, the Federal Aviation Administration (FAA), and Pilots Association to promote “fly neighborly” programs that minimize noise impacts from aircraft take-offs and other low-altitude aircraft operations associated with San Carlos Airport
- Policy PS-14.4: Require development that is, or will be, affected by railroad noise and/or vibration to include appropriate measures to minimize adverse noise effects on residents and business persons.
- Policy PS-14.5: Provide, as appropriate, funding to monitor noise levels and investigate noise complaints.
- Policy PS-14.6: Provide education to the community at large about the importance of maintaining a healthy noise environment, and identify ways residents can assist in noise abatement efforts.

- Policy PS-13.7: Require that mixed-use structures be designed to account for noise from adjacent uses, and minimize transfer of noise and vibration from commercial/retail to residential use.
- Policy PS-13.8: Implement appropriate standard construction noise controls for all construction projects.
- Policy PS-13.9: Require noise created by new non-transportation noise sources to be mitigated so as not to exceed acceptable interior and exterior noise level standards.
- Policy PS-13.10: Do not allow new residential or other noise sensitive land use development in noise impacted areas unless effective mitigation measures are incorporated into the project design to reduce outdoor activity area noise levels.

Additionally, the City’s existing General Plan Noise Element establishes land use compatibility standards shown in Table 4.13-9.

**Table 4.13-9:
Noise/Land Use Compatibility Guidelines**

Land Use Category	Community Noise Exposure Level (CNEL) Compatibility Limit (dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low-Density	<55	55-60	60-75	75<
Residential – Medium/Medium-High Density	<55	55-65	65-75	75<
Residential – High Density	<55	55-70	70-75	75<
Mixed-Use Districts	<60	60-75	75-80	80<
Commercial – Neighborhood	<65	65-75	75-80	80<
Commercial – Regional	<70	70-75	75-80	80<
Commercial – Office Professional/Technology	<65	65-75	75-80	80<
Marina	<60	60-75	75-80	80<
Hospital	<65	65-75	75-80	80<
Industrial/Port	<75	75<	NA	NA
Public Facilities/Schools	<55	55-65	65-70	70<
Open Space/Recreation	<75	NA	75-80	80<

Source: Redwood City General Plan, 2010, Figure PS-10

City of Redwood City Municipal Code

Municipal Code Chapter 24 (Noise Regulation) includes the City’s standards related to noise.

Section 24.20 (Excessive and Unreasonable Noises) of the Municipal Code states that the following are deemed and declared to be excessive and unreasonable noises:

4.13 – Noise

- A. Noise levels, generated on or within any property between the hours of eight o'clock (8:00) P.M. and eight o'clock (8:00) A.M. by a party, dance, meeting or other assemblage of three (3) or more persons, which are more than six (6) dB above the local ambient measured at any point within a residential district of the City and outside the plane of said property;
- B. Noise levels, generated on or within any property in a residential district between the hours of eight o'clock (8:00) P.M. and eight o'clock (8:00) A.M., by a party, dance, meeting or other assemblage of three (3) or more persons which are more than six (6) dB above the local ambient measured three feet (3') from any wall, floor or ceiling inside any dwelling unit on the same property when the windows and doors of such dwelling unit are closed, except within the dwelling unit in which the noise source or sources is located.

Section 24.21 (Prohibited Noise Levels in Residential Districts) of the Municipal Code states that it is unlawful for any person, after having been given notice by the enforcement officer pursuant to Section 24.22, to suffer or allow, within twelve (12) consecutive hours following such notice, noise levels to be generated between the hours of eight o'clock (8:00) P.M. and eight o'clock (8:00) A.M. by a party, dance, meeting or other assemblage of three (3) or more persons on any property:

- A. At more than six (6) dB above the local ambient measured at any point within a residential district and outside the plane of said property; or
- B. At more than six (6) dB above the local ambient measured three feet (3') from any wall, floor or ceiling inside any dwelling unit on the same property within a residential district, when the windows and doors of the dwelling unit are closed, except within the dwelling unit in which the noise source or sources are located.

Section 24.30 (Excessive and Unreasonable Noises) of the Municipal Code states that the following are deemed to be excessive and unreasonable noises:

- A. Noise levels generated by loud equipment or construction activities, including demolition, alteration, repair, landscaping, or remodeling of or to existing structures and construction of new structures on property within the City, at more than one hundred ten (110) dB measured at any point within a residential district of the City and outside of the plane of said property;
- B. Any noise generated by construction activities that persists for ten (10) continuous minutes or more outside of the hours identified in Section 24.32 of this Code;
- C. Noise levels generated by an individual item of machinery, equipment or device used during construction activities, including demolition, alteration, repair or remodeling of or to existing structures and construction of new structures on property within the City, at more than one hundred ten (110) dB measured within a residential district of the City at a distance of twenty-five (25) feet from said machinery, equipment or device. If said machinery, equipment or device is housed within a structure on the property, then the measurement shall be made at a distance as near to twenty-five (25) feet from said machinery, equipment or device as possible.

Section 24.31 (Prohibited Noise Levels) of the Municipal Code states that it shall be unlawful for any person to suffer or allow noise levels to be generated by:

- A. Construction activities, including demolition, alteration, repair or remodeling of or to existing structures and construction of new structures on property within the City, at more than 110 dB measured at any point within a residential district of the City and outside of the plane of said property; or
- B. An individual item of machinery, equipment or device used during construction activities, including demolition, alteration, repair or remodeling of or to existing structures and construction of new structures on property within the City, at more than 110 dB measured within a residential district of the City at a distance of twenty-five feet (25') from said machinery, equipment or device. If said machinery, equipment or device is housed within a structure on the property, then the measurement shall be made at a distance as near to twenty-five feet (25') from said machinery, equipment or device as possible.

Section 24.32 (Time Limitations) of the Municipal Code states the following:

- A. General construction noise on private projects shall be limited to weekdays from seven o'clock (7:00) A.M. to eight o'clock (8:00) P.M. Excessive or unreasonable construction noises, as identified under Section 24.30, shall be limited to weekdays from nine o'clock (9:00) A.M. to four o'clock (4:00) P.M. General and excessive or unreasonable construction noise is prohibited during holiday periods, as indicated on the City website.
- B. Preconstruction noise including, but not limited to, loading and unloading, cleaning of mechanical toilets, maintenance of vehicles, deliveries, truck idling, backup beeps, yelling and radios is also limited to the general and excessive or unreasonable construction noise hours.
- C. The Building Official or their designee may approve construction work occurring outside the times described in Section A and B above for private projects. A request for work outside the designated periods must be received by the Building Official or their designee prior to construction. A copy of the approved request shall be kept on the site of the work.

Section 24.32 (Exemptions) of the Municipal Code states the following:

Noise levels generated by construction activities, including demolition, alteration, repair or remodeling of or to existing structures and the construction of new structures on property within the City: a) in the course or within the scope of emergency work; and b) in the course of work performed personally by the owner or resident of a dwelling unit with respect to said unit on Mondays through Fridays between the hours of seven o'clock (7:00) A.M. and eight o'clock (8:00) P.M. and on Saturdays, Sundays, and holidays between the hours of nine o'clock (9:00) A.M. and eight o'clock (8:00) P.M., are exempt from the provisions of this Division.

4.13.4 Significance Thresholds

Per the CEQA Guidelines, Project implementation would have a significant impact related to noise or vibration if it would result in:

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- a) Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies;
- b) Generation of excessive ground-borne vibration or ground-borne noise levels; or
- c) 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, expose people residing or working in the project area to excessive noise levels.

With regard to criteria (a), the proposed Project would result in a significant construction and/or operational noise impact if it would:

- Conflict with or violate any applicable provision of Municipal Code Chapter 24
- Conflict with or violate any applicable standard or policy in the City’s General Plan Public Safety Element
- Generate operational traffic noise levels that increase ambient noise levels at off-site locations by:
 - 5 dBA or more where the ambient noise level would change from normally acceptable to conditionally acceptable;
 - 3 dBA or more where the existing ambient noise would change from conditionally acceptable to normally unacceptable; or
 - 1 dBA or more where the existing ambient noise level is already normally unacceptable or would change from normally unacceptable to clearly unacceptable.

With regard to criterion (b), the proposed Project would result in a significant construction and/or operational vibration impact if it would:

- Generate construction-related vibration levels that exceed Caltrans’ guidance for potential building damage (see Table 4.13-6); or
- Generate construction-related vibration levels that exceed FTA or Caltrans’ criteria for human annoyance (see Table 4.13-7).

With regard to criterion (c), the proposed Project would expose people living or working in the Planning Area to excessive airport-related noise levels if it would conflict with an applicable airport land use compatibility plan or otherwise expose people to excessive airport-related noise levels from a private air facility.

4.13.5 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Noise impacts.

4.13.6 Impacts and Mitigation Measures

This section describes potential noise and vibration impacts associated with implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

Noise-related impacts from future development pursuant to general plans can be divided into short-term construction-related impacts and long-term noise exposure impacts. Construction-related impacts are associated with construction activities likely to occur in conjunction with future development allocated by the plan. Long-term noise exposure is associated with major noise sources (e.g., traffic, trains, other transit, aircraft, and stationary sources) and changes in noise levels that may occur in the Planning Area as a result of implementation of the Project.

Existing Noise Regulations (Temporary/Construction Impacts)

Impact NOISE-1 – Would the Project result in generation of a substantial temporary increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Analysis of Impacts

Implementation of the Project would involve construction that would result in temporary noise generation, primarily from the use of heavy-duty construction equipment.

The Project allows for more residential and mixed-use development and allows for the increase of the overall amount of development (both residential units and non-residential square footage) within the Planning Area as described in Chapter 3, Project Description.

Since individual project-specific information is not available at this time, potential short-term (construction-related) noise impacts can only be evaluated based on the typical construction activities associated with residential, commercial, and retail development. Potential construction source noise and vibration levels were developed based on methodologies, reference noise levels, typical equipment usage, and other operating factors documented and contained in the Federal Highway Administration's (FHWA) Construction Noise Handbook (FHWA 2006), Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment document (FTA 2018), and Caltrans' Transportation and Construction Vibration Guidance Manual (Caltrans 2013a). Reference levels are noise emissions for specific equipment or activity types that are well-documented and for which their usage is common practice in the field of acoustics.

Construction activities associated with potential development projects could include: staging, demolition, site preparation (e.g., land clearing), fine and mass grading, utility trenching, foundation work (e.g., excavation, pouring concrete pads, drilling for piers), material deliveries (requiring travel along City roads), building construction (e.g., framing, concrete pouring, welding), paving, coating application, and site finishing work. In general, these activities would involve the use of worker vehicles, delivery trucks, dump trucks, and heavy-duty construction equipment such as (but not limited to) backhoes, tractors, loaders, graders, excavators, rollers, cranes, material lifts, generators, and air compressors. These types of construction activities would generate noise and vibration from the following sources:

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- Heavy equipment operations at different work areas. Some heavy equipment would consist of mobile equipment such as a loader and excavator that would move around work areas; other equipment would consist of stationary equipment (e.g., cranes or material hoists/lifts) that would generally operate in a fixed location until work activities are complete. Heavy equipment generates noise from engine operation, mechanical systems, and components (e.g., fans, gears, propulsion of wheels or tracks), and other sources such as back-up alarms. Mobile equipment generally operates at different loads, or power outputs, and produces higher or lower noise levels depending on the operating load. Stationary equipment generally operates at a steady power output that produces a constant noise level.
- Vehicle trips, including worker, vendor, and haul truck trips. These trips are likely to primarily occur on key arterial roads and travel corridors.

Table 4.13-10 presents the noise levels associated with the typical types of construction equipment that could be used in the Planning Area for future individual projects.

Construction noise impacts generally occur when construction activities occur in areas immediately adjoining noise sensitive land uses, during noise sensitive times of the day, or when construction durations last over extended periods of time. Demolition, site preparation, and grading phases typically result in the highest temporary noise levels due to the use of heavy-duty equipment such as bulldozers, excavators, graders, loaders, scrapers, and trucks. As shown in Table 4.13-10, the worst-case L_{eq} and L_{max} noise levels associated with the operation of construction equipment are predicted to be approximately 82 and 85 dBA, respectively, at a distance of 50 feet from the equipment operating area. At an active construction site, it is not uncommon for two or more pieces of construction equipment to operate at the same time and in close proximity. The concurrent operation of two or more pieces of construction equipment would result in noise levels of approximately 85 to 88 dBA at a distance of 50 feet from equipment operating areas.¹

**Table 4.13-10:
Typical Construction Equipment Noise Levels (dBA)**

Equipment	Reference Noise Level at 50 Feet (L_{max}) ^(A)	Percent Usage Factor ^(B)	Predicted Noise Levels (L_{eq}) at Distance ^(C)					
			50 Feet	100 Feet	200 Feet	300 Feet	400 Feet	500 Feet
Auger Drill Rig	85	0.2	78	72	66	62	60	58
Backhoe	80	0.4	76	70	64	60	58	56
Boring Jack Power Unit	80	0.5	77	71	65	61	59	57
Bulldozer	85	0.4	81	75	69	65	63	61
Compact roller	80	0.2	73	67	61	57	55	53

¹ As shown in Table 4.13-10, a single bulldozer provides a sound level of 81 dBA L_{eq} at a distance of 50 feet; when two identical sound levels are combined, the noise level increases to 84 dBA L_{eq} and when three identical sound levels are combined, the noise level increases to 86 dBA L_{eq} . These estimates assume no shielding or other noise control measures are in place at or near the work areas.

**Table 4.13-10:
Typical Construction Equipment Noise Levels (dBA)**

Equipment	Reference Noise Level at 50 Feet (L_{max}) ^(A)	Percent Usage Factor ^(B)	Predicted Noise Levels (L_{eq}) at Distance ^(C)					
			50 Feet	100 Feet	200 Feet	300 Feet	400 Feet	500 Feet
Compressor	80	0.4	76	70	64	60	58	56
Concrete Mixer	85	0.4	81	75	69	65	63	61
Crane	85	0.16	77	71	65	61	59	57
Delivery Truck	84	0.4	80	74	68	64	62	60
Excavator	85	0.4	81	75	69	65	63	61
Front End Loader	80	0.4	76	70	64	60	58	56
Generator	82	0.5	79	73	67	63	61	59
Horizontal Boring Hydraulic Jack	80	0.25	74	68	62	58	56	54
Impact Pile Driver (low)	95	0.2	88	82	76	72	70	68
Impact Pile Driver (high)	101	0.2	94	88	82	78	76	74
Man Lift	85	0.2	78	72	66	62	60	58
Paver	85	0.5	82	76	70	66	64	62
Pneumatic tools	85	0.5	82	76	70	66	64	62
Pumps	77	0.5	74	68	62	58	56	54
Roller	85	0.2	78	72	66	62	60	58
Scraper	85	0.4	81	75	69	65	63	61
Tractor	84	0.4	80	74	68	64	62	60
Vacuum Truck	85	0.4	81	75	69	65	63	61

Sources: Caltrans 2013a and FHWA 2010

A. L_{max} noise levels based on manufacturer's specifications.

B. Usage factor refers to the amount of time the equipment produces noise over the time period.

C. Estimate does not account for any atmospheric or ground attenuation factors. Calculated noise levels based on Caltrans, 2009: L_{eq} (hourly) = L_{max} at 50 feet – $20\log(D/50) + 10\log(UF)$, where: L_{max} = reference L_{max} from manufacturer or other source; D = distance of interest; UF = usage fraction or fraction of time period of interest equipment is in use.

The magnitude of each individual future project's temporary and periodic increase in ambient noise levels would be dependent upon a number of project-specific factors that are not known at this time, including: the amount and type of equipment being used; the distance between the area where equipment is being operated and the location of the specific land use or receptor where noise levels are being evaluated; the time of day construction activities are occurring; the

presence or absence of any walls, buildings, or other barriers that may absorb or reflect sound waves; the total duration of the construction activities; and the existing ambient noise levels near construction areas. For example, a noise level of 88 dBA L_{max} would be similar to typical L_{max} levels measured throughout the Planning Area near arterial roads and freeways, but sustained L_{eq} levels of 85 dBA would be approximately 11 to 20 dBA above daytime ambient conditions along key roadways (e.g., LT-1, LT-2, and ST-1 through ST-5, see Table 4.13-2 and Table 4.13-3), and up to 35 dBA above daytime ambient conditions in residential neighborhoods away from major roadways (e.g., ST-2; see Table 4.13-3). Typically, sustained construction noise levels of 80 to 85 dBA or higher would require the implementation of construction noise control practices such as staging area restrictions (e.g., siting staging areas away from sensitive receptors), equipment controls (e.g., covered engines and use of electrical hook-ups instead of generators), and/or the installation of temporary noise barriers of sufficient height, size (length or width), and density to achieve targeted noise reductions.

Future development under the Project would result in construction activities that could temporarily increase ambient noise levels by 10 dB or more. The City's existing Municipal Code requirements and General Plan policies would ensure construction activities do not occur during the most sensitive time periods (e.g., evening and nighttime periods) and require future discretionary projects to assess and minimize construction noise levels consistent with City goals, policies, and code standards. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Existing Noise Regulations (Permanent/Operational Impacts)

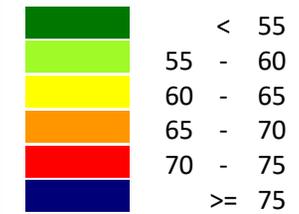
Impact NOISE-2 – Would the Project result in generation of a substantial permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Analysis of Impacts

Implementation of the Project could have the potential to change the existing amounts and types of land uses within the Planning Area. These potential land use changes could increase the number of residents within the Planning Area. This possible increase in population could lead to increased vehicle traffic on the local roadway system, which could result in traffic-related noise levels that pose land use compatibility issues or result in a substantial permanent increase in traffic-related noise levels throughout the Planning Area. Project implementation could also involve increases in stationary noise and other sources of noise within the Planning Area. These potential effects are evaluated below.

**03142201_Redwood City EIR Noise
Cumulative Traffic Noise Level Contours
dBA, CNEL**

Levels in dB(A)



Signs and symbols



Length scale 1:2800

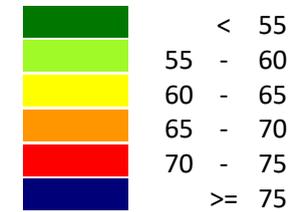


Figure 4.13-3: Cumulative Traffic Noise Contours (2040)

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**03142201_Redwood City EIR Noise
Cumulative + Project
Traffic Noise Level Contours
dBA, CNEL**

Levels in dB(A)



Signs and symbols



Length scale 1:2800



Figure 4.13-4: Cumulative Plus Project Traffic Noise Contours (2040)

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**Table 4.13-11:
Cumulative Plus Project Transportation Noise Contour Distances (2040)**

Road / Segment	Predicted CNEL 50 Feet from Road Centerline (dBA) ^A	CNEL Contour and Distance from Road Centerline in Feet			
		75	70	65	60
Redwood Shores Pkwy					
Bridge Pkwy to Shoreline Dr	64.8	15	48	151	476
Shoreline Dr to Twin Dolphin Dr	70.0	50	158	500	1,582
Twin Dolphin Dr to U.S. 101	71.0	63	199	631	1,994
U.S. 101					
Whipple Ave to Woodside Rd	83.4	2,197	6,948	21,972	69,483
Woodside Rd to Marsh Rd	83.4	2,204	6,968	22,036	69,683
Veterans					
Whipple Ave to Brewster Ave	69.0	39	124	393	1,243
Brewster Ave to Jefferson Ave	67.5	28	90	284	897
Jefferson Ave to Main St	65.9	19	61	194	615
Main St to Maple St	66.1	20	65	204	645
Maple St to Chestnut St	66.1	20	64	203	642
Chestnut St to Woodside Rd	65.3	17	53	169	534
Winslow St					
Whipple Ave to Hopkins Ave	54.2	1	4	13	42
Hopkins Ave to Brewster Ave	55.0	2	5	16	50
Brewster Ave to Arguello St	53.2	1	3	10	33
El Camino Real					
Whipple Ave to Hopkins Ave	72.5	89	280	887	2,803
Hopkins Ave to Brewster Ave	70.8	60	189	597	1,888
Brewster Ave to Broadway	70.4	55	174	549	1,737
Broadway to James Ave	70.0	50	157	496	1,570
James Ave to Jefferson Ave	66.8	24	75	237	749
Jefferson Ave to Maple St	73.4	109	344	1,088	3,442
Maple St to Cedar St	73.6	115	365	1,154	3,650
Cedar St to Roosevelt Ave	73.6	114	360	1,138	3,600
Roosevelt Ave to Pine St	73.6	115	365	1,154	3,650
Pine St to Main St	73.6	115	362	1,146	3,624
Main St to Woodside Rd (SR-84)	73.6	116	366	1,157	3,658
Woodside Rd to Charter St	75.6	182	575	1,817	5,746
Charter St to Center St	75.6	182	575	1,819	5,751

**Table 4.13-11:
Cumulative Plus Project Transportation Noise Contour Distances (2040)**

Road / Segment	Predicted CNEL 50 Feet from Road Centerline (dBA) ^A	CNEL Contour and Distance from Road Centerline in Feet			
		75	70	65	60
Redwood Shores Pkwy					
Center St to Northumberland Ave	75.2	167	528	1,669	5,278
Northumberland Ave to Oakwood Dr	74.6	145	459	1,452	4,591
Oakwood Dr to Selby Ln	74.7	149	471	1,491	4,715
Middlefield Road					
Main St to Chestnut St	61.9	8	24	77	243
Chestnut St to Woodside Rd	62.2	8	26	82	261
Whipple Avenue					
Veterans Blvd to Industrial Way	67.3	27	85	268	849
Industrial Way to Lenolt St	66.6	23	72	228	721
Lenolt St to Arguello St	66.2	21	66	208	659
Arguello St to Stafford St	66.8	24	75	239	755
Stafford St to El Camino Real	67.8	30	96	302	956
Brewster Avenue					
Veterans Blvd to Arguello St	54.9	2	5	15	49
Broadway					
El Camino Real to Perry St	62.0	8	25	80	252
Perry St to Arguello St	62.1	8	26	81	257
Arguello St to Winslow St	61.8	8	24	76	241
Winslow St to Jefferson Ave	55.7	2	6	19	59
Jefferson Ave to Main St	62.8	10	30	96	303
Main St to Spring St	63.6	11	36	114	360
Spring St to Maple St	63.3	11	34	108	340
Maple St to Beech St	63.1	10	32	101	320
Beech St to Chestnut St	64.0	13	40	126	398
Chestnut St to Woodside Rd (SR-84)	64.1	13	41	129	409
Maple Street					
Veterans Blvd to Broadway	47.5	0	1	3	9
Broadway to Middlefield Rd	37.9	0	0	0	1
Chestnut Street					
Veterans Blvd to Broadway	50.6	1	2	6	18
Broadway to Middlefield Rd	54.2	1	4	13	41

**Table 4.13-11:
Cumulative Plus Project Transportation Noise Contour Distances (2040)**

Road / Segment	Predicted CNEL 50 Feet from Road Centerline (dBA) ^A	CNEL Contour and Distance from Road Centerline in Feet			
		75	70	65	60
Redwood Shores Pkwy					
Middlefield Rd to Main St	46.8	0	1	2	8
Main Street					
Veterans Blvd to Middlefield	60.8	6	19	60	189
Middlefield Rd to El Camino Real	56.2	2	7	21	66
Woodside Rd					
U.S. 101 to Broadway	73.4	109	346	1,094	3,460
Broadway to Bay Rd	74.8	152	482	1,523	4,817
Bay Rd to Spring St	74.4	139	439	1,389	4,392
Spring St to Middlefield Rd	73.3	108	340	1,075	3,401
Middlefield Rd to El Camino Real	73.6	114	360	1,137	3,595
El Camino Real to Hess Rd	72.6	91	286	906	2,864
Hess Rd to Hudson St	72.8	94	298	943	2,981
Hudson St to Gordon St/Orchard Ave	72.9	97	308	974	3,081
Gordon St/Orchard Ave to Kentfield Ave	72.2	82	260	822	2,600
Kentfield Ave to Massachusetts Ave	74.0	124	393	1244	3,935
Massachusetts Ave to Sequoia Ave	74.3	136	429	1355	4,286
Sequoia Ave to Alameda Dr	72.3	85	269	851	2,690
Source: MD, 2022 (see Appendix E)					
(A) CNEL values are as estimated 50 feet from the road center, excepting U.S. 101 (CNEL at 100 feet).					

**Table 4.13-12:
Cumulative and Cumulative Plus Project Traffic Noise Levels**

Road / Segment	Cumulative (2040)		Cumulative Plus Project (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Redwood Shores Pkwy						
Bridge Pkwy to Shoreline Dr	13,499	64.5	14,341	64.8	842	0.3
Shoreline Dr to Twin Dolphin Dr	31,210	69.9	32,007	70.0	797	0.1
Twin Dolphin Dr to U.S. 101	32,606	70.9	33,460	71.0	854	0.1
U.S. 101						
Whipple Ave to Woodside Rd	263,574	83.4	265,982	83.4	2,408	0.0

**Table 4.13-12:
Cumulative and Cumulative Plus Project Traffic Noise Levels**

Road / Segment	Cumulative (2040)		Cumulative Plus Project (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Woodside Rd to Marsh Rd	263,138	83.4	266,750	83.4	3,612	0.0
Veterans Blvd						
Whipple Ave to Brewster Ave	46,639	68.5	51,902	69.0	5,263	0.5
Brewster Ave to Jefferson Ave	38,563	67.7	37,470	67.5	-1,093	-0.2
Jefferson Ave to Main St	19,338	64.7	25,663	65.9	6,325	1.2
Main St to Maple St	24,585	65.2	30,054	66.1	5,469	0.9
Maple St to Chestnut St	25,035	65.4	29,631	66.1	4,596	0.7
Chestnut St to Woodside Rd	24,505	64.6	28,792	65.3	4,287	0.7
Winslow St						
Whipple Ave to Hopkins Ave	1,746	53.1	2,276	54.2	530	1.1
Hopkins Ave to Brewster Ave	1,547	52.6	2,693	55.0	1,146	2.4
Brewster Ave to Arguello St	1,062	50.9	1,815	53.2	753	2.3
El Camino Real						
Whipple Ave to Hopkins Ave	41,024	72.2	44,145	72.5	3,121	0.3
Hopkins Ave to Brewster Ave	28,266	70.6	29,725	70.8	1,459	0.2
Brewster Ave to Broadway	25,114	70.2	26,592	70.4	1,478	0.2
Broadway to James Ave	22,093	69.8	22,847	70.0	754	0.2
James Ave to Jefferson Ave	23,452	66.6	24,190	66.8	738	0.2
Jefferson Ave to Maple St	51,835	73.2	54,202	73.4	2,367	0.2
Maple St to Cedar St	53,550	73.4	56,691	73.6	3,141	0.2
Cedar St to Roosevelt Ave	53,545	73.3	56,691	73.6	3,146	0.3
Roosevelt Ave to Pine St	54,291	73.4	57,483	73.6	3,192	0.2
Pine St to Main St	52,713	73.4	54,602	73.6	1,889	0.2
Main St to Woodside Rd (SR-84)	55,879	73.4	59,390	73.6	3,511	0.2
Woodside Rd to Charter St	72,120	75.5	74,693	75.6	2,573	0.1
Charter St to Center St	72,169	75.5	74,756	75.6	2,587	0.1
Center St to Northumberland Ave	66,515	75.1	68,611	75.2	2,096	0.1
Northumberland Ave to Oakwood Dr	66,513	74.5	68,611	74.6	2,098	0.1
Oakwood Dr to Selby Ln	63,084	74.6	65,188	74.7	2,104	0.1
Middlefield Rd						

**Table 4.13-12:
Cumulative and Cumulative Plus Project Traffic Noise Levels**

Road / Segment	Cumulative (2040)		Cumulative Plus Project (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Main St to Chestnut St	11,932	61.4	13,382	61.9	1,450	0.5
Chestnut St to Woodside Rd	12,986	61.7	14,355	62.2	1,369	0.5
Whipple Ave						
Veterans Blvd to Industrial Way	38,167	67.1	40,159	67.3	1,992	0.2
Industrial Way to Lenolt St	36,084	66.3	38,749	66.6	2,665	0.3
Lenolt St to Arguello St	32,856	65.9	35,298	66.2	2,442	0.3
Arguello St to Stafford St	34,215	66.5	36,745	66.8	2,530	0.3
Stafford St to El Camino Real	35,970	67.5	38,408	67.8	2,438	0.3
Brewster Ave						
Veterans Blvd to Arguello St	826	51.8	1,671	54.9	845	3.1
Broadway						
El Camino Real to Perry St	13,046	61.7	14,048	62.0	1,002	0.3
Perry St to Arguello St	13,048	61.8	14,069	62.1	1,021	0.3
Arguello St to Winslow St	12,275	61.5	13,250	61.8	975	0.3
Winslow St to Jefferson Ave	3,085	55.5	3,253	55.7	168	0.2
Jefferson Ave to Main St	15,629	62.5	16,884	62.8	1,255	0.3
Main St to Spring St	18,749	63.3	20,047	63.6	1,298	0.3
Spring St to Maple St	15,423	62.9	17,063	63.3	1,640	0.4
Maple St to Beech St	15,706	62.7	17,162	63.1	1,456	0.4
Beech St to Chestnut St	19,547	63.6	21,305	64.0	1,758	0.4
Chestnut St to Woodside Rd	21,330	63.9	22,386	64.1	1,056	0.2
Maple St						
Veterans Blvd to Broadway	703	46.6	859	47.5	156	0.9
Chestnut St						
Veterans Blvd to Broadway	572	48.6	910	50.6	338	2.0
Broadway to Middlefield Rd	2,366	54.4	2,241	54.2	-125	-0.2
Middlefield Rd to Main St	305	45.5	416	46.8	111	1.3
Main St						
Veterans Blvd to Middlefield Rd	9,398	60.3	10,398	60.8	1,000	0.5
Middlefield Rd to El Camino Real	3,283	55.8	3,616	56.2	333	0.4

**Table 4.13-12:
Cumulative and Cumulative Plus Project Traffic Noise Levels**

Road / Segment	Cumulative (2040)		Cumulative Plus Project (2040)		Net Change	
	ADT	CNEL ^(A)	ADT	CNEL ^(A)	ADT	CNEL
Woodside Rd (SR-84)						
U.S. 101 to Broadway	43,616	73.1	46,737	73.4	3,121	0.3
Broadway to Bay Rd	61,236	74.7	63,455	74.8	2,219	0.1
Bay Rd to Spring St	59,778	74.3	61,397	74.4	1,619	0.1
Spring St to Middlefield Rd	49,802	73.2	51,654	73.3	1,852	0.1
Middlefield Rd to El Camino Real	52,552	73.4	54,606	73.6	2,054	0.2
El Camino Real to Hess Rd	41,231	72.3	43,504	72.6	2,273	0.3
Hess Rd to Hudson St	44,378	72.5	46,944	72.8	2,566	0.3
Hudson St to Gordon St/Orchard Ave	44,633	72.7	47,156	72.9	2,523	0.2
Gordon St/Orchard Ave to Kentfield Ave	38,584	71.9	40,949	72.2	2,365	0.3
Kentfield Ave to Massachusetts Ave	41,099	73.7	43,679	74.0	2,580	0.3
Massachusetts Ave to Sequoia Ave	35,999	74.1	37,731	74.3	1,732	0.2
Sequoia Ave to Alameda Dr	28,335	72.1	29,857	72.3	1,522	0.2
Source: MD, 2022 (see Appendix E)						
(A) CNEL values are as estimated 50 feet from the road center except for U.S. 101 (CNEL at 100 feet)						

Increases in Traffic and Rail Noise Levels

Although the Project does not authorize any specific development project or increase existing vehicular traffic levels, the City contracted with a professional transportation engineering firm (Fehr and Peers) to conduct travel demand modeling associated with the proposed Project land use changes (Fehr and Peers 2022; see Chapter 4.17, Transportation, and Appendix E). The travel demand modeling provides a sufficient level of detail to generally evaluate the potential future increases in traffic-related noise levels associated with projected growth. Future 2040 Project traffic noise levels were computed using the same methodology (TNM methodology) and data sources used to calculate existing (Year 2020) and future (Year 2040) baseline traffic noise levels (see Section 4.13.2), except that 2040 Project traffic levels were obtained from the TIA prepared for the Project and entered into the traffic model.

Rail noise contours were not evaluated as a part of this analysis as rail noise levels are not expected to significantly increase as a result of the Project.

ADT and traffic noise levels that would occur with implementation of the Project. Refer to Appendix E for detailed transportation noise modeling results.

As shown in Table 4.13-12, the results of the traffic noise modeling indicate that traffic noise levels within the Planning Area would continue to be highest along major travel corridors such as U.S. 101, El Camino Real, and Woodside Road; however, the Project would not substantially increase traffic volumes or traffic noise levels along these roadways. The traffic noise modeling indicates the Project could increase traffic noise levels by more than one decibel on four roadways: Veterans Boulevard, Winslow Street, Brewster Avenue, and Chestnut Street. Specifically, the modeling shows:

- Cumulative traffic noise levels along Veterans Boulevard from Jefferson to Main Street are at 65 CNEL at a distance of 50 feet from the center of the roadway which is within the conditionally acceptable limit for mixed-use land uses. Cumulative plus project levels would remain in conditionally acceptable levels at 66 CNEL.
- Cumulative traffic noise levels along Winslow Avenue, Brewster Avenue, and Chestnut Street are within the normally acceptable limits for all land uses at a distance of 50 feet from the center of the roadway. Cumulative plus project traffic noise levels would remain within the normally acceptable limits for all land uses.
- All other roadways would increase by less than a decibel.

Pursuant to the State noise standards, California Building Code, Section 1207.4, new residential structures would be required to be constructed such that interior noise levels do not exceed an 45 dBA CNEL. Standard construction techniques and materials are commonly accepted to provide a minimum exterior to interior noise attenuation (i.e., reduction) of 22–25 dBA with all windows and doors closed (HUD 2009a and 2009b).² These interior noise reductions would be adequate for some developments occurring under the Project to meet interior noise standards. New residential and mixed-use developments, particularly along segments with higher speed limits (40 mph or more), could require additional noise attenuation design features along roadways which are estimated to exceed 65 CNEL under existing and future conditions. Similarly, the 2030 Projected Noise Contours from the existing General Plan indicate that the Project has proposed residential developments within the railway’s 65 CNEL contour. Adherence to the State’s mandatory noise standards would ensure residential and mixed-use structures within the Planning Area meet or exceed the 45 dBA CNEL standard.

Increases in Stationary and Other Sources of Noise

Stationary and other sources of noise in the Planning Area include, but are not limited to, landscape and building maintenance activities, stationary mechanical equipment (e.g., pumps, generators, HVAC units), garbage collection activities, commercial and industrial activities, and other stationary and area sources such as people’s voices, amplified music, and public address systems.

² The U.S. Department of Housing and Urban Development (HUD) Noise Guidebook and supplement (2009a, 2009b) includes information on noise attenuation provided by building materials and different construction techniques. As a reference, a standard exterior wall consisting of 5/8-inch siding, wall sheathing, fiberglass insulation, two by four wall studs on 16-inch centers, and 1/2-inch gypsum wall board with single strength windows provides approximately 35 dBs of attenuation between exterior and interior noise levels. This reduction may be slightly lower (2-3 dBs) for traffic noise due to the specific frequencies associated with traffic noise. Increasing window space may also decrease attenuation, with a reduction of 10 dBs possible if windows occupy 30% of the exterior wall façade.

4.13 – Noise

Noise generated by residential or commercial uses is generally short-term and intermittent. Industrial uses may generate noise on a more continual basis due to the types of their activities. The Project would increase residential and commercial development within the Planning Area and, in particular, allow mixed use development in which residential and commercial uses are integrated into a single development project. These types of developments tend to have higher noise levels associated with the mix of land uses contained within them. Future planned development could also result in new stationary and area sources as well as exposure of new sensitive land uses to existing stationary and area sources.

The City's existing General Plan includes goals and policies that minimize the impact of ambient and operational noise levels throughout the Planning Area. In addition, Redwood City Municipal Code Chapter 24 (Noise Regulation) establishes the City's standards related to noise.

Thus, stationary and other sources of noise would be controlled by the General Plan goals and policies, and the Municipal Code, which limit allowable noise levels at adjacent properties. Therefore, future stationary noise sources would comply with City standards and would not expose people to a substantial permanent increase in noise levels.

Stationary and other sources of noise would be controlled by the General Plan goals and policies, and the Municipal Code, which limits allowable noise levels at adjacent properties. Therefore, future operational noise would comply with City standards and would not expose people to a substantial permanent increase in noise levels from transportation or non-transportation noise sources. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Ground-borne Vibration and Noise Levels

Impact NOISE-3 – Would the Project result in generation of excessive ground-borne noise levels?

Analysis of Impacts

Temporary Construction Vibration Levels

Construction activities have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Vibration generated by construction equipment spreads through the ground and diminishes with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and at high levels can cause sleep disturbance in places where people normally sleep or annoyance in buildings that are primarily used for daytime functions and sleeping (e.g., a hospital). Ground vibration can also

potentially damage the foundations and exteriors of existing structures even if it does not result in a negative human response. Pile drivers and other pieces of high-impact construction equipment are generally the primary cause of construction-related vibration impacts. The use of such equipment is generally limited to sites where there are extensive layers of very hard materials (e.g., compacted soils, bedrock) that must be loosened or penetrated to achieve grading and foundation design requirements. The need for such methods is usually determined through site-specific geotechnical investigations that identify the subsurface materials within the grading envelope, along with foundation design recommendations and the construction methods needed to safely permit development of a site.

Construction equipment and activities are categorized by the nature of the vibration they produce. Equipment or activities typical of continuous vibration include excavation equipment, static compaction equipment, vibratory pile drivers, and pile-extraction equipment. Equipment or activities typical of transient (single-impact) or low-rate, repeated impact vibration include impact pile drivers, and crack-and-seat equipment. Pile driving and blasting activities produce the highest levels of ground vibration and can result in structural damage to existing buildings.

Since individual project-specific information is not available at this time, potential short-term construction-related vibration impacts can only be evaluated based on the typical construction activities associated with residential, commercial, and industrial development. Potential construction source vibration levels were developed based on methodologies, reference noise levels, and typical equipment usage and other operating factors documented and contained in the FHWA's Construction Noise Handbook (FHWA 2006), FTA's Transit Noise and Vibration Impact Assessment document (FTA 2018), and Caltrans' Transportation and Construction Vibration Guidance Manual (Caltrans 2020). Reference levels are vibration emissions for specific equipment or activity types that are well-documented and for which their usage is common practice in the field of acoustics.

Future development as a result of the Project would occur in primarily urban settings where land is already disturbed and, therefore, is not likely to require blasting, which is typically used to remove unwanted rock or earth. Standard construction equipment (e.g., bulldozers, trucks, jackhammers) generally does not cause vibration that could cause structural or cosmetic damage but may be felt by nearby receptors. Table 4.13-13 presents the typical types of equipment that could be used for future development activities in the Planning Area.

**Table 4.13-13:
Ground-borne Vibration and Noise from Typical Construction Equipment**

Equipment	Peak Particle Velocity (in/sec) ^(A)			Velocity Decibels (VdB) ^(B)		
	25 feet	50 feet	100 feet	25 feet	50 feet	100 feet
Small bulldozer	0.003	0.001	0.001	58	49	40
Jackhammer	0.035	0.016	0.008	79	70	61
Rock Breaker	0.059	0.028	0.013	83	74	65
Loaded truck	0.076	0.035	0.017	86	77	68
Auger Drill Rig	0.089	0.042	0.019	87	78	69

**Table 4.13-13:
Ground-borne Vibration and Noise from Typical Construction Equipment**

Equipment	Peak Particle Velocity (in/sec) ^(A)			Velocity Decibels (VdB) ^(B)		
	25 feet	50 feet	100 feet	25 feet	50 feet	100 feet
Large bulldozer	0.089	0.042	0.019	87	78	69
Vibratory Roller	0.210	0.098	0.046	94	85	76
Impact Pile Driver (upper range)	1.518	0.708	0.330	112	103	94
Impact Pile Driver (typical)	0.644	0.300	0.140	104	95	86
Sonic Pile Driver (upper range)	0.734	0.42	0.160	105	96	87
Sonic Pile Driver (typical)	0.170	0.079	0.037	93	84	75

Sources: Caltrans 2013 and FTA 2018
(A) Estimated PPV calculated as: $PPV(D)=PPV(ref)*(25/D)^{1.1}$ where PPV(D)= Estimated PPV at distance; PPVref= Reference PPV at 25 ft; D= Distance from equipment to receiver; and n= ground attenuation rate (1.1 for dense compacted hard soils).
(B) Estimated Lv calculated as: $Lv(D)=Lv(25\text{ feet})-30\text{Log}(D/25)$ where Lv(D)= estimated velocity level in decibels at distance, Lv(25 feet)= RMS velocity amplitude at 25 ft; and D= distance from equipment to receiver.

As shown in Table 4.13-13, specific vibration levels associated with typical construction equipment are highly dependent on the type of equipment used. Vibration levels dissipate rapidly with distance, such that even maximum impact pile driving activities would result in vibration levels below Caltrans' recommended 0.5 PPV threshold for transient vibration-induced damage in historic, older buildings at a distance 100 feet; all other activities would be below Caltrans' threshold for transient vibration-induced damage in historic, older buildings at a distance of 25 feet. For human responses, maximum impact pile driving activities would result in ground-borne vibration and noise levels below Caltrans' threshold for a distinctly perceptible response (0.24 PPV) and the FTA's vibration standard for infrequent events at residential lands (80 VdB) at a distance of approximately 150 feet and 300 feet, respectively. All other activities may be barely to distinctly perceptible when occurring within approximately 150 feet of sensitive land uses.

Long-Term Ground-borne Vibration Levels

The proposed Project could facilitate the construction of mixed-use and residential projects adjacent to the existing Caltrain railroad. With regards to vibration impacts on new development near railroads, human disturbance is the primary concern. It is extremely rare for vibration levels from trains passing to result in structural damage to buildings. In addition, buses and other transit vehicles are not anticipated to generate excessive vibration levels that would disturb sensitive receptors because these vehicles are travelling at lower speeds and do not generate substantial vibrations.

The FTA's *Transit Noise and Vibration Impact Assessment* document provides recommended ground-borne vibration criteria for general environmental assessments. The vibration criteria vary according to the sensitivity of the land use and the frequency of vibration events (i.e., number of

trains passing by the sensitive land use), as shown in Table 4.13-5. For frequent events (i.e., more than 70 trains passing by in one day), the criteria generally vary between 65 Vdb for buildings where vibration would interfere with interior operations (e.g., highly sensitive research facilities, hospitals), to 72 VdB for residences and buildings where people normally sleep, to 75 VdB for land uses with primarily daytime use. Highly sensitive research facilities and hospitals are not anticipated under the proposed Project and, therefore, the 65 VdB threshold is not considered further in this analysis. The FTA's guidance document contains generalized ground surface vibration curves derived from vibration measurements of transit systems in North America (FTA 2018, Figure 6-4). Based on these vibration prediction curves, proposed residential development within approximately 200 feet of a passenger rail line as measured from the centerline of the track could be exposed to vibration levels that exceed the FTA's recommended threshold of 72 VdB for residences. Similarly, other proposed land uses within approximately 120 feet of a passenger rail line could be exposed to vibration levels that exceed the FTA's recommended threshold of 75 VdB for land uses with primarily daytime occupancy. Therefore, future planned developments along the railway could be exposed to excessive transit train vibration levels that exceed FTA-recommended vibration criteria (for human annoyance and response factors) of 72 or 75 VdB, respectively. The proposed Project contains no policies to address potential excessive vibration levels from commuter train operations. This is considered a potentially significant impact requiring mitigation.

Typical construction activities may be barely to distinctly perceptible when occurring within approximately 150 feet of sensitive land uses. Most construction equipment does not operate in the same location for prolonged periods of time. Therefore, even if construction equipment were to operate near a building where receptors may feel vibration, it would only be for a temporary amount of time and would not be considered excessive. This impact is considered less than significant.

Future planned mixed-use development adjacent to the Caltrain rail line (residential and non-residential) could be exposed to excessive freight train vibration levels that exceed FTA-recommended vibration criteria (for human annoyance and response factors) of 72 or 75 VdB, respectively. This is considered a ***potentially significant impact*** requiring mitigation.

Implementation of Mitigation Measure NOISE-1 ensure that future development is not exposed to excessive ground-borne vibration from freight train operations.

Level of Significance Before Mitigation

Potentially Significant Impact

Mitigation Measures

Mitigation Measure NOISE-1 The City shall require new residential projects located within 200 feet of the railroad track and commercial projects located within 120 feet to conduct a train ground vibration and vibration noise evaluation consistent with approved vibration assessment methodologies (e.g., Caltrans, Federal Transportation Authority).

Level of Significance After Mitigation

Mitigation Measure NOISE-1 would require projects near the Caltrain rail corridor to assess and minimize freight train vibration impacts such that disturbance to building occupants would not occur. Therefore, this impact would be **less than significant with mitigation**.

Excessive Airport-related Noise Levels

Impact NOISE-4 – 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 area to excessive noise levels?

Analysis of Impacts

The closest airport to the Planning Area is the San Carlos Airport. The Planning Area is not located in any noise contour zone associated with this airport and would not expose people residing or working in the Planning Area to excessive airport-related noise levels. This impact would be **less than significant**.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.13.7 References

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. Sacramento, California. September 2013.

_____. 2020. Traffic Census Program.

_____. 2020. Transportation and Construction Vibration Guidance Manual. Sacramento, California. April 2020.

City of Redwood City. 2010. General Plan Public Safety Element. 2010.

_____. 2022. Redwood City Municipal Code Chapter 24 – Noise Regulation. August 2022.

California Office of Planning and Research (OPR). 2017. State of California General Plan Guidelines. Sacramento, California. 2017.

Caltrain. 2022. Redwood City Station. Web. Accessed August 23, 2022. <<https://www.caltrain.com/station/redwoodcity>>

Fehr & Peers Transportation Consultants. 2022. "08152022_Traffic_Segments_Summary.xlsx."

U.S. Federal Highway Administration (FHWA). 2010. “Construction Noise Handbook, Chapter 9 Construction Equipment Noise Levels and Ranges”: Accessed online at: <https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook00.cfm>

U.S. Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. Prepared by John A. Volpe National Transportation Systems Center. Washington, DC. September 2018.

U.S. Department of Housing and Urban Development (HUD). 2009a. HUD Noise Guidebook. Prepared by the Environmental Planning Division, Office of Environment and Energy. March 2009.

_____. 2009b. HUD Noise Guidebook, Chapter 4 Supplement: Sound Transmission Class Guidance. Prepared by the Environmental Planning Division, Office of Environment and Energy. March 2009.

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	Full Phrase or Description
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D	Distance
dB	Decibel (unweighted)
dBA	Decibels, A-Weighted
DNL / L _{dn}	Day-Night Noise Level
FHWA	Federal Highway Works Administration
FTA	Federal Transit Administration
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
Hz	Hertz
In/sec	Inches per Second
kH	Kilohertz
L _{eq}	Average / Equivalent Noise Level
L _{max}	Maximum Noise Level
L _{min}	Minimum Noise Level
LT	Long-term
OITC	Outside-Indoor Transmission Class
OPR	Office of Planning and Research
Pa	Pascals
PPV	Peak Particle Velocity (inches/second)
SR	State Route
ST	Short-term
STC	Sound Transmission Class
TIA	Transportation Impact Analysis
TNM	Traffic Noise Model
UF	Usage Factor
VdB	Velocity Decibels
VMT	Vehicle Miles Travelled
§	Section
%	Percent

4.14 Population and Housing

This EIR chapter describes the existing populating and housing characteristics of the Planning Area and identifies potential impacts associated with implementation of the proposed Project. Mitigation measures are identified, if required.

4.14.1 Environmental Setting

The Planning Area includes a mix of residential, mixed-use, commercial, industrial, institutional, and open space uses. A description of the existing population, housing, and employment characteristics within the Planning Area is provided below.

Population

As shown in Table 4.14-1, based on U.S. Census data reported by the California Department of Finance and Association of Bay Area Governments (ABAG) growth forecasts, the population of Redwood City grew by approximately 11 percent, from 76,815 to 85,182 residents, between 2010 and 2020. This growth rate was greater than San Mateo County as a whole (7.6 percent) for the same period. For 2020 to 2040, ABAG estimates that the City's population will grow by approximately 22 percent, while countywide population is expected to grow by 18.5 percent. As described in Chapter 3, Project Description, of this EIR, and summarized in Table 4.14-1, the City's population including the Sphere of Influence (SOI) for 2020 is 107,731 with a forecasted population change between 2020-2040 of 21.9 percent. Table 4.14-2 shows the demographics and racial profile of the City.

**Table 4.14-1:
Population and Projected Growth**

Area	2010	2020	2040	2010-2020 Change	2020-2040 Projected Change
Redwood City	76,815	85,182	103,940	10.9%	22.0%
Redwood City plus SOI	100,478 ¹	107,731 ²	131,347 ²	7.2%	21.9%
San Mateo County	718,451	773,244	916,590	7.6%	18.5%

Source: CA Department of Finance E-5 Population and Housing Estimates 2020; ABAG Growth Forecasts (Plan Bay Area 2040).

SOI = "sphere of influence"

¹ Redwood City plus SOI population from Table BE-2 (2008 baseline), Redwood City General Plan, The Built Environment, Urban Form and Land Use Element, page BE-59.

² See Project Description Table 3-3.

**Table 4.14-2:
Demographics and Racial Profile of the City**

Demographic Profile	2019
AGE	
0-14	15,538 (18%)
15-24	9,458 (11%)
24-44	27,871 (33%)
45-64	22,047 (26%)
65+	10,870 (13%)
Median Age	36.7
RACE/ETHNICITY	
White (non-Hispanic)	37,794 (44%)
Hispanic	30,405 (35%)
Black	1,312 (2%)
Asian/Pacific Islander	12,974 (15%)
American Indian	244 (<1%)
Other	3,055 (4%)
Source: US Census Bureau 2010 Census, American Community Survey 2015-2019 5-year estimates	

Housing

In 2020, the Department of Finance estimates there are 31,536 housing units in the city. Compared to 2010, the City's housing stock has increased by 2,369 units. Most of the City's housing stock is made up of single-family homes (58 percent) and multi-family homes (41 percent), with mobile homes representing the remaining one percent. Census data indicates that 0.3 percent of owner units and 2.3 percent of rental units are vacant.

As described in the Housing Element Update, the Redwood City median home price in October 2021, based information provided by CoreLogic, was \$1,750,000. The median home price in San Mateo County in October 2021 was \$1,525,000, 13 percent lower than the median price in Redwood City. Approximately 50 percent of Redwood City households live in rental housing. Census data shows that the average rent in Redwood City is \$2,355 per month, ranging from \$1,578 for a studio/efficiency up to \$3,285 for a four-bedroom unit.

Employment

As described in the Housing Element Update, in 2018 Redwood City had 40,418 workers living within its borders who work across 11 major industrial sectors. The majority of Redwood City residents worked in following sectors: professional and managerial services (22 percent); health and educational services (20 percent); arts, recreation and other services (14 percent); information (11 percent); and manufacturing and wholesale industries (10 percent). Between 2010 and 2018, the proportion of workers employed in the information industry doubled from five

percent to 11 percent. Since 2002, nearly 20,000 new jobs have been added within Redwood City, resulting in an estimated 69,400 jobs as of 2018.

4.14.2 Regulatory Framework

State

Housing Element Law (California Government Code Article 10.6)

The State has established detailed legal requirements for a General Plan Update (GPU) Housing Element. State Law requires each City and County to prepare and maintain a current Housing Element as part of the community's GPU to attain a Statewide Goal of providing "decent housing and a suitable living environment for every California family." Under State law, Housing Elements generally must be updated every five years and reviewed by the California Department of Housing and Community Development (HCD).

Regional

Regional Housing Needs Assessment (RHNA)

Housing Element law requires a quantification of each jurisdiction's share of the regional housing need as established in the plan prepared by the jurisdiction's council of governments. The California Department of Housing and Community Development (HCD), in conjunction with ABAG, determine a projected housing need for the Bay Area. This share, known as the Regional Housing Needs Allocation (RHNA), is projected to be 441,176 new housing units for the 2023-2031 planning period throughout the ABAG region. ABAG has, in turn, allocated this share among municipalities, distributing to each a RHNA divided into income levels. The City of Redwood City has an estimated RHNA of 4,588 housing units to accommodate in the housing element period. The RHNA distribution is as shown in Table 4.14-3.

**Table 4.14-3:
City of Redwood City Regional Housing Needs Allocation (RHNA)**

Income Category	Number of Housing Units	Percent of Total Allocation
Very Low (0-50% of County AMI)	1,115	24%
Low (> 50-80% of County AMI)	643	14%
Moderate (>80-120% of County AMI)	789	17%
Above Moderate (120% of County AMI)	2,041	44%
Total	4,588	100%

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range plan for the nine-county San Francisco Bay Area. *Plan Bay Area 2050* focuses on four key elements — housing, the economy, transportation and the environment — and identifies a path to make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. With respect to housing, the Plan projects that the Bay Area will need to add more than 441,000 new affordable housing units by 2050 to

4.14 – Population and Housing

meet the region’s housing needs. The following housing strategies were identified in *Plan Bay Area 2050*:

- *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.

Local

Redwood City General Plan

Housing related goals and policies from the adopted General Plan Built Environment – Urban Form and Land Use Element are listed below:

- Policy BE-2.4: Provide opportunities for housing development at a range of densities and housing types that provide various choices for current and future residents
- Policy BE-2.7: Effectively integrate single-unit and multi-unit housing with local-serving convenience and neighborhood shopping centers, parks and recreation opportunities, child care, and other uses appropriate for neighborhoods.
- GOAL BE-3: Encourage high-quality design in all new and modified housing.

- Policy BE-3.9: Encourage new residential development to incorporate accessibility for persons with mobility constraints, including small children, seniors, and disabled persons, when completing site designs. New development should be at least “visitable” by persons with disabilities.

GOAL BE-4: Preserve community character and historic buildings while attracting new infill development and investment in Historic Influence High Density Neighborhoods.

- Policy BE-4.1: Insist upon high-quality infill development, and facilitate the renovation of existing residential buildings.
- Policy BE-4.2: Encourage carefully designed and sensitive infill development that creates harmony and compatibility with nearby structures of historic value and merit. Require new development to integrate with, if not enhance, the historic nature of the neighborhood through appropriate site patterns and building character

GOAL BE-5: Retain the unique character of the Historic Influence Low Density Neighborhoods.

- Policy BE-5.1: Require that new construction, additions, renovations, and infill development be sensitive to neighborhood context, historic development patterns, and building form and scale (for example, second stories, detached garages, setbacks, enhanced front entrances).
- Policy BE-5.2: Require that residential units be designed to sustain the high- level of architectural design quality that characterizes Redwood City’s Historic Influence Low Density Neighborhoods.

GOAL BE-6: Preserve the character and enhance the quality of Post-War Neighborhoods.

GOAL BE-7: Achieve improved aesthetic and parking conditions in Mixed Density Neighborhoods.

GOAL BE-8: Preserve the scenic beauty and quality homes that define Hillside Neighborhoods.

- Policy BE-8.3: Address oversized and out-of-scale residential development, including appropriate neighborhood building scale and compatibility.

GOAL BE-9: Preserve the qualities that distinguish Master Planned Neighborhoods.

- Policy BE-9.1: Continue to enforce development standards that apply to Master Planned Neighborhoods (including those focusing on the provision of open space) to ensure that neighborhood evolution holds to the original vision.
- Policy BE-9.3: Require a variety of homes within any new residential master planned development, with the goal of establishing new opportunities for persons of varied income ranges, ages, lifestyles, and family needs.
- Policy BE-10.2: Allow for a diversity of unique housing types, including floating homes and live-aboard boats. Consult with interested stakeholders to enhance existing floating communities and to establish floating community best practices and standards.

4.14 – Population and Housing

GOAL BE-11: Create memorable and engaging retail, residential, and mixed-use destinations and paths along the corridors.

- Policy BE-11.3: Plan for and accommodate mixed-use projects along corridors, where a site or sites are developed in an integrated, compatible, and comprehensively planned manner involving two or more land uses. Combine residential and office uses with commercial development to reduce automobile trips and encourage walking, and facilitate compact, sustainable development.
- Policy BE-11.4: Promote mixed-use developments that include higher-density residential units that transition sensitively with adjacent lower-density residential uses.

GOAL BE-13: Enhance the Woodside Road Corridor as an attractive residential boulevard with walkable mixed-use neighborhood centers, a pedestrian and transit-oriented character, and consistent design elements that unify its image.

- Policy BE-13.4: Support new higher-density residential development on Woodside Road, while ensuring that new development is sensitive to adjacent single-unit residential neighborhoods.
- Policy BE-22.5: Track new residential and non-residential development and link the information to available water resources and the jobs: housing balance.
- Policy BE-23.7: Promote higher residential densities at locations near or within commercial, financial, and compatible employment centers, and also transportation corridors where neighborhood services are available.

4.14.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the proposed Project would have a significant impact related to population and housing if it would:

- a) 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 road or other infrastructure);
- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere; or

4.14.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Population and Housing impacts.

4.14.5 Impacts and Mitigation Measures

This section describes potential impacts related to population and housing that could result from the implementation of the Project and recommends mitigation measures, as needed, to reduce potentially significant impacts.

Population Growth

Impact POP-1 – Would the Project 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 road or other infrastructure)?

Analysis of Impacts

Induced population growth may result in impacts if a project induces growth in an area not otherwise planned for growth or in an area that cannot adequately accommodate such growth. Growth may be induced directly by proposals for new residential uses or indirectly by proposals for new roadways, other infrastructure, or employment opportunities.

As discussed in EIR Chapter 3, Project Description, implementation of the Housing Element Update would result in a net increase of 11,277 dwelling units and 23,616 residents within the Planning Area by 2040 (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period).

The proposed Project includes rezoning, creation of new zoning districts, changing selected development standards to allow an increase in development density/intensity, and General Plan text and map amendments to allow for an increased in development within the City. While the Housing Element Update encourages development of additional housing within the City, the vast majority of new housing would be undertaken by private development that will be subject to market influences that are beyond the City's control. Additionally, it is unrealistic to assume that all housing inventory sites within the City would be developed at their maximum development potential. Given this, however, the potential development of 11,277 units was evaluated within this EIR as a realistically feasible development scenario given proposed housing programs and related land use and zoning changes. As indicated in Table 3-3, and noted above, as a result of this potential development, the Redwood City resident population would increase by approximately 23,616 residents by 2040.

The Housing Element Update is intended to accommodate the City's RHNA share determined by ABAG for the 2023-2031 planning period. As such, the population growth associated with the Housing Element Update would not be unplanned as the document includes the identification of inventory sites for future housing development. 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, and the Project would not induce substantial unplanned population growth. This impact would be considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

4.14 – Population and Housing

Mitigation Measures

None required.

Housing Growth

Impact POP-2 – Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Analysis of Impacts

There is limited vacant land within the City, and some of the housing sites identified in the Housing Element Update currently include residential uses. It is possible that new development associated with implementation of the Housing Element Update could result in displacement of existing residents. Although existing housing units could be displaced as part of a property's redevelopment, displaced units are expected to be replaced by higher-density residential development. Implementation of the Housing Element Update would result in the net increase of units within the City and would not result in displacement of substantial numbers of population or housing. This impact would be considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.14.6 References

City of Redwood City. 2022. City of Redwood City, 2023-2031 Housing Element HCD Review Draft. April 2022.

Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG). 2021. Plan Bay Area 2050. May 26, 2021.

Redwood City Census. 2022. Bay Area Census. Web: <http://www.bayareacensus.ca.gov/cities/RedwoodCity.htm> [Accessed July 2022].

4.15 Public Services

This EIR describes and evaluates public services impacts associated with implementation of the Project. Public services evaluated within this chapter include fire protection, police protection, schools and libraries; mitigation measures are presented if impacts are identified. Please see Chapter 4.16, Recreation, for an analysis of potential park impacts.

4.15.1 *Environmental Setting*

Public services described in this section include fire protection, police protection, schools, and libraries. Please see Chapter 4.16, Recreation, for a discussion of parks within the Planning Area.

Fire Protection

The Redwood City Fire Department (Fire Department) includes seven fire stations housing seven engines, one truck, one battalion chief and currently has over 90 staff members including firefighters, firefighter/paramedics, captains, battalion chiefs, fire prevention staff, training staff, and administrative staff (City of Redwood City 2022). The Fire Department also provides fire protection services to the City of San Carlos.

The Insurance Services Office (ISO) assigns fire departments a Public Protection Classification from 1 to 10, with Class 1 representing superior property fire protection. The ISO has notified the Fire Department that it had achieved a Public Protection Classification (PPC) rating of “Class 1.” San Carlos also receives the Class 1 rating through Redwood City’s contract. Before this current evaluation, Redwood City was rated as a Class 2 fire department and San Carlos was rated as a Class 3 fire department.

Five fire stations are located in the Planning Area:

- Station 9: 755 Marshall Street, Redwood City, CA 94063
- Station 10: 2190 Jefferson Ave., Redwood City, CA 94061
- Station 11: 1091 Second Ave., Redwood City, CA 94063
- Station 12: 3700 Jefferson Ave., Redwood City, CA 94062
- Station 20: 680 Redwood Shores Parkway, Redwood City, CA 94065

In addition, San Mateo County (Woodside Fire Protection District) Fire Station 19 is located in the unincorporated Emerald Hills neighborhood within the City’s SOI. See Figure 4.15-1 for a map of the fire stations in the Planning Area.

Police Protection

The Redwood City Police Department headquarters are located at 1301 Maple Street in Redwood City (City of Redwood City 2022). The Department polices a 19 square-mile area and includes 96 sworn officers, 36 civilian employees, 4 reserve officers, and 25 volunteers.

The Department is divided into three organizational divisions: the Patrol Division, the Investigations Division, and the Administrative Services Division. The Patrol Division includes officers who responds to emergency and non-emergency calls for services, as well as specialized functions such as the Patrol Unit, Marine Unit, Canine Officers, Community Policing Activities Team, School Resource Officer Program, Traffic Enforcement Unit, and the Parking Enforcement Unit. The Investigations Division encompasses Detective Teams, the Juvenile Services Unit, and the Property and Evidence Unit. The Detectives Teams investigate a large variety of crimes including property crimes and crimes against persons. The Juvenile Services Unit provides prevention and early intervention services to youth and their families in Redwood City. The Property and Evidence Unit is the custodian of all items collected by Department personnel or submitted to the department as items for safekeeping, found property, items collected as evidence or items to be destroyed.

Schools

Three public school districts serve the Planning Area: the Redwood City School District (RCSD), the Belmont-Redwood Shores School District (BRSD), and the Sequoia Union High School District (SUHSD). The Planning Area is served by the Redwood City School District for kindergarten through eighth grade. Sequoia Union High School District oversees three high schools. A third school district, the Belmont-Redwood Shores School District, manages several schools within the City. Information about the school districts and schools serving students within the Planning Area is shown in Table 4.15-1. As shown in Table 4.15-1, 17,787 students were enrolled in 24 schools serving residents within the Planning Area in 2021-2022. Enrollment for the school districts over the last five school years is included in Table 4.15-2. As indicated, enrollment has generally declined.

**Table 4.15-1:
School Districts and Schools Serving Residents Within the Planning Area**

District and School	Grades	2021-2022 Enrollment	Total District Enrollment (2021-2022)
Redwood City Elementary School District			7,657
Adelante School	K-5	582	
Clifford School	K-8	658	
Connect Community Charter School	K-8	153	
Garfield Elementary School	K-8	528	
Henry Ford Elementary School	K-5	461	
Hoover Elementary School	K-8	695	

**Table 4.15-1:
School Districts and Schools Serving Residents Within the Planning Area**

District and School	Grades	2021-2022 Enrollment	Total District Enrollment (2021-2022)
KIPP Excelencia Community Preparatory School	K-8	816	
Northstar Academy	3-8	511	
Orion Alternative	K-5	386	
Rocketship Redwood City	K-5	308	
Roosevelt Elementary School	K-8	655	
Roy Cloud Elementary School	K-8	628	
Taft Elementary School	K-5	326	
John F. Kennedy Middle School	6-8	663	
McKinley School of Technology	6-8	287	
Belmont-Redwood Shores Elementary School District			933
Redwood Shores Elementary	K-5	358	
Sandpiper School	K-8	575	
Sequoia Union High School District			9,197
Carlmont High School	9-12	2,302	
Everest Public High School	9-12	322	
Menlo-Atherton	9-12	2,221	
Redwood High School	9-12	218	
Sequoia High School	9-12	1,945	
Summit Preparatory Charter High School	9-12	430	
Woodside High School	9-12	1,759	
Source: Department of Education, DataQuest Home, Enrollment Report, 2021-2022.			

**Table 4.15-2:
School District Enrollment between 2017-2022**

School District	District Enrollment (Students)					Difference between 2017-2022
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	
Belmont-Redwood Shores	4,324	4,308	4,314	4,152	3,967	-357
Redwood City	8,803	8,725	8,530	8,086	7,669	-1,134
Sequoia Union	10,021	10,246	10,238	10,327	10,032	+11

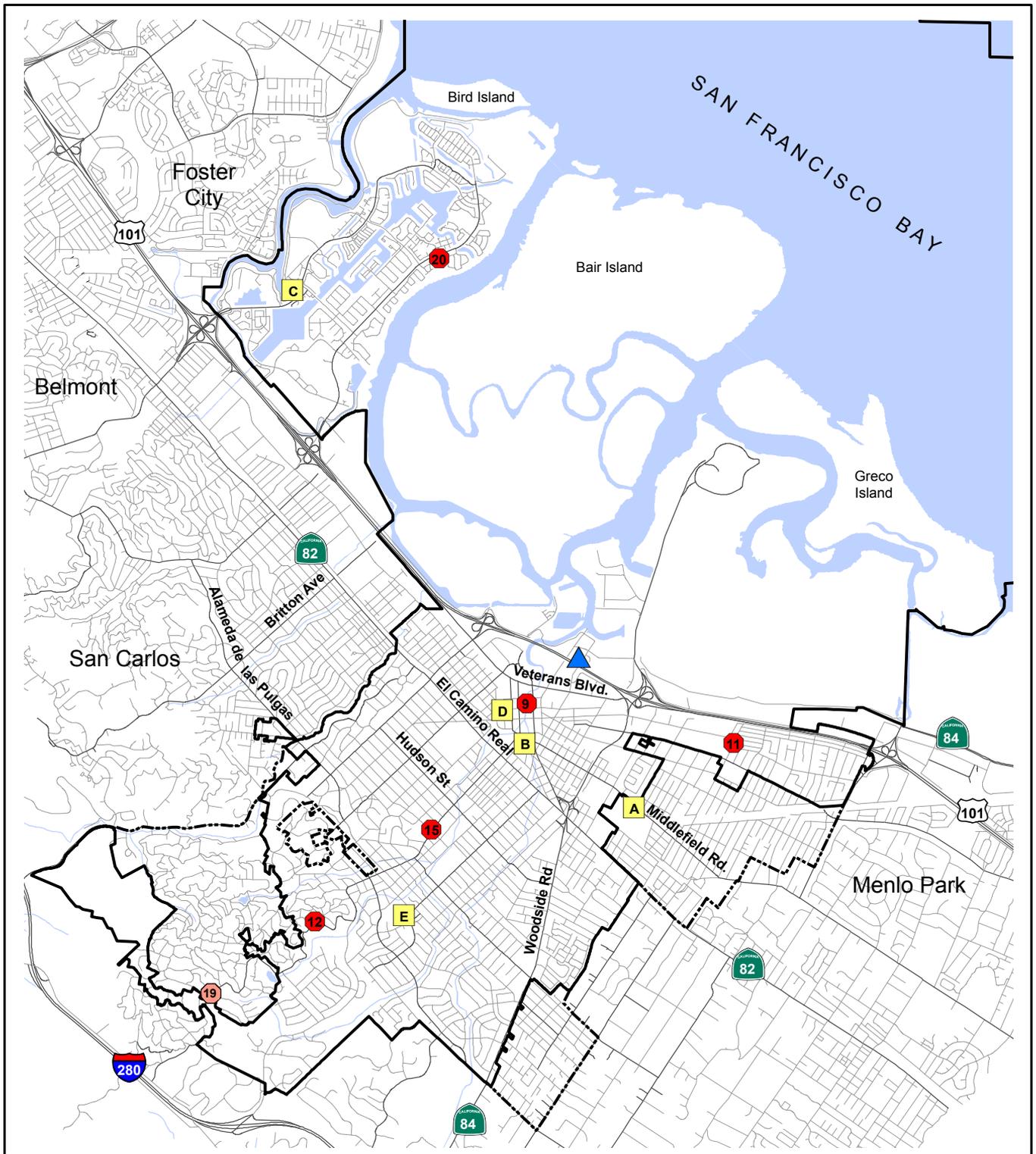
Source: Department of Education, DataQuest Home, Enrollment Report, 2021-2022.

Libraries

Five libraries are located in the Planning Area, including three libraries in the Redwood City Public Library (RCPL) System and one library in the San Mateo County Libraries System (North Fair Oaks) (City of Redwood City 2010a):

- Main Downtown Library, 1044 Middlefield Rd, Redwood City, CA 94063
- Schaberg Branch Library, 2140 Euclid Avenue, Redwood City, CA 94061
- Redwood Shores Branch Library, 399 Marine Parkway, Redwood City, CA 94065
- North Fair Oaks Library, 2510 Middlefield Road, San Carlos, CA 94063
- San Mateo County Law Library, 710 Hamilton Street, CA 94063

All Redwood City public libraries are funded and operated by the City. The City’s libraries participate in the Peninsula Library System, which allows for borrowing within the County. The Main Downtown and Redwood Shores library branches have a five-star rating from the Library Journal Index of Public Library Service, which is based on per capita measurements including the number of items borrowed, number of visits, number and type of programs offered, attendance at activities, and level of public internet use (City of Redwood City 2010). These two branches also have the highest circulation of items within the City’s library system. See Figure 4.15-1 for a map of the libraries in the Planning Area.



Public Services

Source: Fehr and Peers, 2010

- 9 Redwood City Fire Station/Number
- 19 San Mateo County (Woodside Fire Protection District) Fire Station/Number
- ▲ Redwood City Police Station

- Library
- A** - Fair Oaks Library
- B** - Main Downtown Library
- C** - Redwood Shores Library
- D** - San Mateo County Law Library
- E** - Schaberg Library

Redwood City Limits

Figure 4.15-1: Public Services Facilities in the Planning Area

4.15.2 Regulatory Framework

Federal

Standardized Emergency Management System and National Incident Management System (SEMS)

According to the State's SEMS, local agencies have primary authority regarding rescue and treatment of casualties and making decisions regarding protective actions for a community. When a major incident occurs the first few moments are critical in terms of reducing loss of life and property. First responders must be sufficiently trained to understand the nature and the gravity of the event to minimize the confusion that inevitably follows catastrophic situations. This on-scene authority rests with the local emergency services organization and the incident commander. Additional information regarding the City's SEMS program can be found in Section 4.9 Hazards and Hazardous Waste.

State

California Building Code

The 2019 California Building Code (CBC) became effective January 1, 2020, including Part 9 of Title 24, the California Fire Code. Section 701A.3.2 of the CBC has building requirements related to fire safety.

California Health and Safety Code (Sections 13000 et seq.)

This code establishes State fire regulations, including regulations for building standards (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.

California Fire Code

Redwood City has adopted the 2019 California Fire Code, with amendments to address specific local conditions and needs. These provisions include construction standards and fire hydrant requirements, road widths and configurations designed to accommodate the passage of fire trucks and engines, and requirements for minimum fire flow rates for water mains (see also OCFA below).

Education Code Section 17620

The Education Code allows school districts to assess fees on new residential and commercial construction within their respective boundaries. These fees can be collected without special city or county approval to fund the construction of new school facilities necessitated by the impact of residential and commercial development activity. In addition, these fees can also be used to fund the reconstruction of school facilities or reopening schools to accommodate development-related enrollment growth. Fees are collected immediately prior to the time of the issuance of a building permit by the City.

Leroy F. Greene School Facilities Act (1998)

California Government Code Section 65995 sets base limits and additional provisions for school districts to levy development impact fees and to help fund expanded facilities to house new pupils that may be generated by the development project. Sections 65996(a) and (b) state that such fees collected by school districts provide full and complete school facilities mitigation under CEQA. These fees may be adjusted by the District.

LocalRedwood City General Plan

The adopted Redwood City General Plan contains the following goals, policies, and implementation programs related to public services:

Building Community Element

Goal BC-3: Ensure that public places evolve to meet the needs of changing city demographics and public interests and are accessible to all members of the community.

Policy BC-3.1: Incorporate flexible design characteristics into the renovation of existing and development of new parks and community facilities. Consider incorporating education with recreation opportunities.

Policy BC-3.2: Continue to build, renovate, and maintain parks and community facilities in a manner that is environmentally responsible.

Goal BC-4: Provide state-of-the-art community facilities that support established programs, accommodate future needs, and are accessible to all members of the community.

Policy BC-4.1: Maintain multi-functional, flexible, and complementary space at Redwood City's community buildings and centers.

Policy BC-4.2: Maximize public facility use by sharing with nonprofit organizations, school districts, and community organizations.

Policy BC-4.3: Include in the City's Capital Improvement Program programming and funds for timely community facility improvements.

Policy BC-4.4: Locate new community facilities in neighborhoods and centers where they will serve populations of the greatest needs. Look for opportunities to create joint-use community space at facilities owned by private organizations such as faith-based groups, service clubs, banks, and hospitals.

Policy BC-4.5: Continue to maintain or improve open hours at all libraries.

Program BC-6: Public Use of Private and Quasi-Private Properties Liability Issues.

4.15 – Public Services

- Comprehensively address any liability issues associated with public use of private and quasi-public properties, and determine whether the City could or should be a partner in such endeavors.
- Consult with the property owners and other interested persons early in the process.
- Provide grants for the development of small, infill public places on public or private lands, including for such uses as community gardens, neighborhood participation activity, or other projects that bring people together and build community.

Public Safety Element

Goal PS-11: Provide a high level of public safety services.

Policy PS-11.1: Work with the Police Department to determine and meet community needs for law enforcement services.

Policy PS-11.2: Work with the Fire Department to determine and meet community needs for fire protection and related emergency services.

Policy PS-11.3: Continue to monitor gang activities in the community, and consult with surrounding jurisdictions and outside groups and organizations to prevent criminal activities and gang violence. Continue to provide youth programs. Aggressively respond to criminal and gang activity in the community, and work collaboratively on local and countywide programs to reduce crime and prevent gang violence.

Program PS-38: Crime and Drug Prevention Programs. Continue to implement existing volunteer programs, after-school activities such as DARE, police activities within local schools, Neighborhood Watch programs, the Police Activities League, and school resource and outreach programs for crime and drug prevention.

Program PS-39: Adequate Police and Fire Departments Service Requirements. Provide funding for the Police Department and Fire Department to maintain sufficient personnel and the highest level of technology and equipment to meet service requirements of new growth and other specific needs, as appropriate.

4.15.3 Significance Thresholds

Per CEQA Guidelines, implementation of the Project would have a significant public services impact if it would:

- A. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
 1. Fire protection;

2. Police protection;
3. Schools;
4. Other public facilities.

4.15.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

The Project does not propose revised or new policies or implementation programs that would specifically avoid or reduce significant public services impacts.

4.15.5 Impacts and Mitigation Measures

New or Altered Government Services

Impact PUB-1 – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could 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

Analysis of Impacts

As discussed in EIR Chapter 3, Project Description, the Project is estimated to result in a net increase of 11,277 dwelling units (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period). An estimated increase of approximately 23,616 residents is projected for the 2040 buildout year.

The Public Safety Element of the General Plan contains goals and policies regarding fire protection. Goal PS-11, Policy PS-11.2, and Program PS-39 all require the City to provide adequate fire protection services, including maintaining sufficient personnel and the highest level of technology and equipment to meet service requirements of new growth and other specific needs.

The increase in City residents and land use intensity in the Planning Area would result in an incremental increase in demand for fire services and existing fire protection resources within the City. However, with continued payment of fees for fire protection services to the Redwood City Fire Department, future projects would not have a significant effect on service demands. Annual fees for fire protection services are based on staffing levels in the City plus overhead cost shares established at the time the annual contracts are approved by the City Council. These fees are updated annually based on salary and employee benefits and overhead as agreed by the Fire Department and the City. In the event that additional fire protection facilities and/or resources are needed in the Planning Area, property tax growth would provide the City with the funding to meet new growth needs. Additionally, development would be subject to current Redwood City Fire Department requirements for fire sprinkler systems, fire alarm systems, fire flow, and equipment

and firefighter access, as well as Fire Code requirements. Compliance with these standards would be ensured through the plan check process prior to the issuance of building permits and would reduce the potential for fire emergencies at future housing sites.

For these reasons, the construction or expansion of existing fire facilities would not be required as a result of the Project. If a new or expanded fire department facilities were to be required as a result of population growth, this new facility would need to comply with existing environmental regulations, which would include a development review process and environmental review pursuant to CEQA.

Therefore, the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered facilities. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Police Protection

Analysis of Impacts

As discussed in EIR Chapter 3, Project Description, the Project is estimated to result in a net increase of 11,277 dwelling units (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period). An estimated increase of approximately 23,616 residents is projected for the 2040 buildout year.

The adopted Public Safety Element of the General Plan contains goals and policies regarding police protection. Goal PS-11, Policy PS-11.1, Policy PS-11.3, and Program PS-39 all require the City to provide adequate police protection services, including maintaining sufficient personnel and the highest level of technology and equipment to meet service requirements of new growth and other specific needs.

The increased land use intensity in the Planning Area could increase the frequency of emergency and non-emergency calls to the Redwood City Police Department, as compared with existing conditions. However, the Project is not anticipated to increase demand for police protection to the extent that new facilities would be required. While new development would incrementally increase demand on police protection services, such demand would be offset by increased property tax revenues which can then be used for the maintenance and/or expansion of police protection facilities. The City does not anticipate needing to expand existing or build new police facilities as a result of potential population and land use intensity increases from the Project. If a new or expanded police facilities were to be required as a result of population growth, this new facility would need to comply with existing environmental regulations, which would include a development review process and environmental review pursuant to CEQA.

For these reasons, the construction or expansion of existing police facilities would not be anticipated as a result of the Project. The Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities. This impact would be *less than significant*.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Schools

Analysis of Impacts

As discussed in EIR Chapter 3, Project Description, the Project is estimated to result in a net increase of 11,277 dwelling units (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period). An estimated increase of approximately 23,616 residents is projected for the 2040 buildout year.

While the proposed Project would result in increased residential building area and a higher population in the Planning Area, statewide trends in declining student enrollment rates are expected to result in a decrease in the number of students in the Planning Area (California Department of Education). The Redwood City Elementary School District, Belmont-Redwood Shores Elementary School District, and Sequoia Union High School District boundaries do not coincide with those of the Planning Area. Several schools serving Planning Area residents are located outside the Planning Area, and not all schools within these districts serve only Redwood City residents. As shown in Table 4.15-1, schools that serve residents in the Planning Area enrolled 17,787 students in the 2021-2022 school year.

California Government Code Section 65996 and Education Code Section 17620 authorize school districts to levy a development fee on new residential projects to offset the costs associated with new students present in the districts as a result of new development. Projects within the Planning Area would be required to pay all applicable school fees. Development Impact Fees finance the construction and/or reconstruction of school facilities needed to accommodate students coming from new development. Projects adding 500 square feet or more of living space must pay a school impact fee. This fee is shared between Sequoia Union High School District and the elementary/middle school districts (Redwood City School District, and Belmont-Redwood Shores Elementary School District). The current (2022) school impact fee for residential construction is currently \$3.79/square foot; this school impact fee may change over the course of Project implementation. As stated in California Government Code Section 65996, the provisions of Government Code section 65996 are the exclusive methods available to the City for considering and mitigating impacts on school facilities that might occur as a result of the City's approval of the Project. Therefore, payment of school impact fees in accordance with California Government Code Section 65995 and/or Education Code Section 17620 is deemed to constitute full and complete mitigation for potential impacts to schools caused by development. In addition, any

school facility updates or expansions that may be required to serve the additional student population generated by development under the Project would be required to undergo environmental review if and when they are constructed, and appropriate measures would be identified and implemented as applicable to reduce any construction-related or operational effects of such facilities.

Because new development in the Planning Area would be required to pay Development Impact Fees and any school facility updates or expansions would be required to undergo environmental review as part of the development review process, impacts related to the need for new school facilities as a result of the proposed Project would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact.

Mitigation Measures

None required.

Other Public Facilities

Analysis of Impacts

Other public facilities and services provided within the Planning Area include libraries and City administrative services. Most residential neighborhoods within the Planning Area are within a one-mile walking distance to one of the five public libraries. The Main Downtown Library, Redwood Shores Library, and Schaberg Library are part of the Redwood City Public Library (RCPL) System and are funded by the City. The North Fair Oaks Library, a San Mateo County public library, is located in the City's SOI in the North Fair Oaks community. The San Mateo County Law Library, established in 1916, is located in Downtown Redwood City and serves the legal research needs of the surrounding community.

The Building Community Element of the General Plan contains adopted goals, policies, and implementation programs that would ensure sufficient access to libraries and other public facilities. These goals and policies include Goal BC-4 and Policies BC-4.1 through BC-4.5. Goal BC-4 calls for community facilities to accommodate future needs and be accessible to all members of the community. Policies BC-4.1 through BC-4.5 guide the City to maximize the functionality of community facilities, ensure timely community facility improvements, locate new community facilities in neighborhoods and centers where they will serve populations of the greatest needs, and maintain or improve open hours at all City libraries.

While the Project would generate population growth in the Planning Area that would be expected to result in increased use of public library facilities, the Project does not specifically include any new or expanded public facilities, the construction of which could result in environmental impacts. If any new or expanded public facilities are proposed in the future, such construction and/or expansion would be subject to CEQA, and environmental analysis prepared pursuant to CEQA would identify potentially significant impacts and appropriate mitigation measures. Further, it is anticipated that existing library and City administrative services would accommodate any increase

in demand due to implementation of the proposed Project. This impact would be **less than significant**.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.15.6 References

California Department of Education. 2022. DataQuest Home, Enrollment Report, 2021-2022. Web: <https://dq.cde.ca.gov/dataquest/> [Accessed September 12, 2022].

City of Redwood City. 2010. City of Redwood City. 2010. A New General Plan for Redwood City. Draft Environmental Impact Report. May 2010.

_____. 2010. Redwood City General Plan. October 11, 2020. Web: <https://www.redwoodcity.org/departments/community-development-department/planning-housing/planning-services/general-plan-precise-plans/general-plan> [Accessed August 26, 2022].

_____. 2019. Parks, Recreation & Community Services Parks and facilities Needs Assessment. Web: [RWC NeedsAssessment Final PRINT.indd \(redwoodcity.org\)](#) [Accessed August 25, 2022].

_____. 2022. Fire Department. Web: <https://www.redwoodcity.org/departments/fire-department> [Accessed September 12, 2022].

_____. 2022. Redwood City Police Department. Web: <https://www.redwoodcity.org/departments/police-department> [Accessed September 12, 2022].

_____. 2022. Development Impact Fees. Web: <https://www.redwoodcity.org/home/showpublisheddocument/24502/63777600371060000> [Accessed September 12, 2022].

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4.16 Recreation

This EIR chapter describes existing recreational facilities within the Planning Area, analyzes potential impacts associated with implementation of the Project, and identifies mitigation measures, if required.

4.16.1 *Environmental Setting*

Parkland

Redwood City parks accommodate active and passive recreational activities. Active park spaces include sports fields, game courts, and playgrounds. Passive parks consist generally of green space with walking paths, sitting and picnic areas, and natural undeveloped areas. Redwood City parks include mini parks, neighborhood parks, community parks, special use parks, and sports fields on public school property. The total acreage of active parkland within the City is 229.95 acres. The total acreage of parkland in the Planning Area is 237.45 acres, which includes parkland associated with schools located in the City's sphere of influence but not within City limits (see "Parks in Sphere of Influence" below). The following information on parks within the City is sourced from the 2019 Redwood City Parks, Recreation & Community Services Needs Assessment and the 2010 Redwood City New General Plan Draft EIR (where indicated). Table 4.16-1 lists the individual parks within the City by park type and acreage.

Mini Parks

Mini parks are small, single-purpose improved area generally equipped for use by small children.

Mini parks are generally less than one acre, address limited recreation needs, and offer limited amenities. There are 12 mini parks located throughout the City totaling 8.43 acres.

Neighborhood Parks

Neighborhood parks have combined playground and park areas generally for non-organized activities and may include a restroom. The City's 12 neighborhood parks total approximately 29.81 acres.

Community Parks

Community parks are designed for organized activity with users traveling from some distance. Community parks include parking, sports fields and restrooms. Redwood City has four community parks totaling 94.68 acres: Hoover Park, Marlin Park, Red Morton Park, and Stulsaft Park.

Special Use Parks

Special use parks consist of recreational areas that do not fit another category, such as dog parks and skate parks. Redwood City has 10 special use parks totaling 52.64 acres.

**Table 4.16-1:
Redwood City Parks by Type**

Park Name	Park Type	Acres
Davit Lane	Mini Park	1.16
Dove Beeger Park	Mini Park	0.73
Jardin de Ninos Park	Mini Park	0.41
Little River Park	Mini Park	0.08
Linden Park	Mini Park	0.41
John S. Rosselli Memorial Garden	Mini Park	0.64
Palm Park	Mini Park	0.95
Portside Park	Mini Park	0.83
Sandpiper Point Park	Mini Park	0.78
Starboard Park	Mini Park	0.62
Wellesley Crescent	Mini Park	1.42
Westwood Park	Mini Park	0.40
	Total Acres	8.43
Andrew Spinus Park	Neighborhood Park	1.77
Dolphin Park	Neighborhood Park	2.55
Fleishman Park	Neighborhood Park	0.64
Garrett Park	Neighborhood Park	6.32
Maddux Park	Neighborhood Park	0.89
Mariner Park	Neighborhood Park	4.01
Mezes Park	Neighborhood Park	1.39
Preserve Park	Neighborhood Park	3.07
Sandpiper Park Turf	Neighborhood Park	2.08
Shannon Park	Neighborhood Park	1.77
Shorebird Park	Neighborhood Park	3.68

**Table 4.16-1:
Redwood City Parks by Type**

Park Name	Park Type	Acres
Stafford Park	Neighborhood Park	1.64
	Total Acres	29.81
Hoover Park, Pool and Field	Community Park	10.48
Marlin Park	Community Park	10.94
Red Morton Park	Community Park	30.89
Stulsaft Park	Community Park	42.37
	Total Acres	94.68
Shore Dogs Park	Special Use Park	1.07
Cringle Park	Special Use Park	1.19
City Center Plaza	Special Use Park	0.15
Main Street Dog Park	Special Use Park	0.14
Courthouse Square	Special Use Park	0.65
Easter Bowl	Special Use Park	8.86
Fair Oaks Community Center	Special Use Park	2.35
Hawes Park	Special Use Park	2.68
Union Cemetery	Special Use Park	5.74
Lido Assessment District	Special Use Park	29.81
	Total Acres	52.64
Adelente Elementary School	School Park	1.53
Hawes Elementary School	School Park	0.70
Henry Ford Elementary School	School Park	2.75
John Gill Elementary School	School Park	1.47
Orion Elementary School	School Park	0.59
Redwood Shores Elementary School	School Park	1.37

**Table 4.16-1:
Redwood City Parks by Type**

Park Name	Park Type	Acres
Roosevelt Elementary School	School Park	2.35
Roy Cloud Elementary School	School Park	2.58
Sandpiper School	School Park	0.86
Taft School Field	School Park	2.99
Kennedy Middle School	School Park	5.23
McKinley Middle school	School Park	3.91
Redwood Highschool	School Park	0.49
Sequoia High School	School Park	17.57
Total Acres		44.39
Total Acres for All Park Types		229.95
Source: Redwood City, Parks, Recreation & Community services Parks and Facilities Needs Assessment (March 2019)		

School Parks

School parks are school-owned facilities consisting of active sport and recreational use areas. School parks typically have limited availability. Fourteen school parks, totaling 44.39 acres, are located throughout the City.

Open Space

Open space areas are undeveloped, publicly-owned areas for rest, relaxation and contemplation. Open space areas are defined in the Parks Needs Assessment as land owned by the City or another public agency, located within City limits with some recreational value, but primarily purposed to preserve natural resources. These open spaces provide enjoyable views and vistas to encourage healthy activities such as walking, jogging and bicycling but are generally unsuitable for organized sports or programmed recreation activities. There is a total of 701.59 acres of open space area in the City (City of Redwood City 2019). The 2019 Parks Needs Assessment’s intent was to inventory and evaluate the availability of active parkland in the City. The 2019 Parks Needs Assessment did not include open space acreage in the total acreage calculations for City parkland because as noted above, while open space areas provide enjoyable views and vistas to encourage healthy activities such as walking, jogging, and bicycling, they are generally unsuitable for organized sports or programmed recreation activities.

Park Planning Areas

Park Planning Areas

- 1. Redwood Shores
- 2. Downtown
- 3. North Redwood City
- 4. Middle Redwood City
- 5. Southeast Redwood City
- 6. South Redwood City
- 7. East of 101

Redwood City Parks and Recreation Facilities

- Community Park
- Neighborhood Park
- Mini Park
- Special Use Park

Redwood City Open Spaces

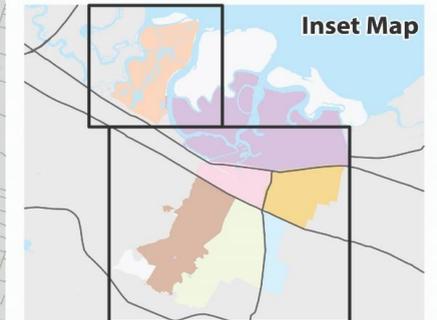
- Preserve
- Redwood City Open Space - Preservation

Other Parks, Schools, and Open Spaces

- Redwood City Schools
- Other Parks and Open Spaces
- County Park - Edgewood Park & Natural Preserve

Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- Caltrain Railroad and Stations
- Bay, Harbor, and Sloughs
- Channel, Rivers, and Streams



Source: City of Redwood City, 2018; U.S. Census Bureau, 2010.

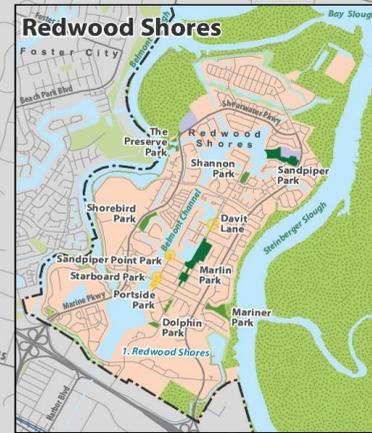
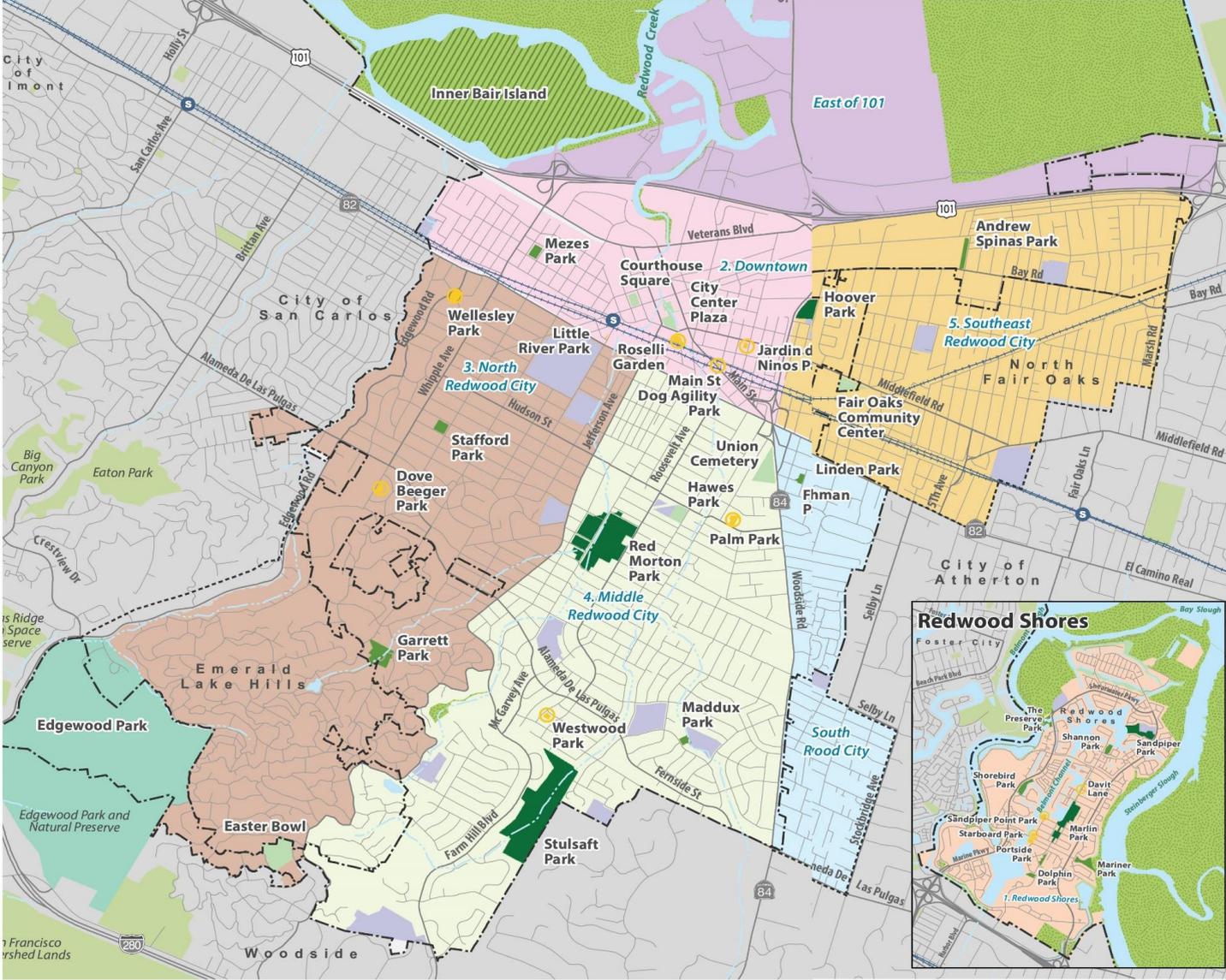


Figure 4.16-1: Parks and Recreational Facilities

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Parks in Sphere of Influence

All of the previously described parklands are located within Redwood City limits. Adjacent neighborhoods in the Planning Area, specifically North Fair Oaks and Emerald Lake Hills, include additional public parklands, many associated with school facilities (City of Redwood City 2010). Public parkland associated with school facilities in the SOI totals 7.5 acres.

Park Facilities and Recreational Programs

Redwood City recreation and human service programs promote civic involvement by all community members. The Parks, Recreation, and Community Services Department and the Library Department administer the recreation and human services programs, and also oversee arts and culture and continuing education programs, with many activities available at the libraries, community centers, and schools. The five community centers in the City provide places where local groups—scouts, youth sport organizations, self-help organizations, and community clubs—conduct their activities (Redwood City 2019). To address human service needs, the City works with a variety of agencies and organizations to address, for example, housing assistance, nutrition education and supplementary food needs, and crisis intervention. All services and programs are organized to target specific interests and needs, with programs adjusted over time to reflect changing demographics.

Trails

Recreational or multi-use trails support healthy activities in an urban area. Trails can be located in an existing park or within public rights-of-way and can connect neighborhoods to parks and commercial or employment areas. There are several trail systems in Redwood City (Redwood City 2010).

Bay Trail

The Bay Trail is a multi-use regional trail planned to circle the entire San Francisco Bay. This trail provides nearly 400 miles of noncontiguous paved and natural surface trails for walkers, skaters, hikers, bicyclists, and wildlife watchers. Within Redwood City, the trail provides connections to Seaport Center, Inner Bair Island, and Redwood Shores. In the southeast, it connects to Menlo Park's Bayfront Park and to Foster City in the northwest. A major local gap in the Bay Trail exists in the vicinity of the Cargill property, through the bay-side industrial area, and to and from the bridge across Redwood Creek.

Bair Island Trail

The Bair Island Trail is a natural pathway that circumferences nearly three-fourths of Inner Bair Island. This trail provides access to open spaces along the Bay. Bair Island is under the stewardship of the Don Edward San Francisco Bay Wildlife Refuge, which is managed by the U.S. Fish and Wildlife Service.

Edgewood County Park and Preserve Trails Edgewood County Park and Preserve was established by San Mateo County to include many natural areas, with these trails for hikers to enjoy the quiet and green of the hillsides:

4.16 – Recreation

- Edgewood Trail
- Serpentine Loop Trail
- Sylvan Loop Trail
- Ridgeview Loop
- Clarkia Trail

Edgewood Trail is nearly two miles long and connects Edgewood County Park and Preserve to Crystal Springs Trail and other San Mateo County open space areas and San Francisco watershed lands. Two key trailheads in the park have parking areas to allow users to access the trails: Old Stage Trailhead at the northeastern area of park and Clarkia Trailhead in the southwestern portion. The park and trails are maintained by San Mateo County.

Redwood Shores Trails

The Redwood Shores master-planned community has a comprehensive network of urban and nature trails that link neighborhoods. Several multi-use (walking and bicycle) trails loop around Redwood Shores and Marine Parkways. Other trails connect neighborhoods to parks and schools. The trails along Steinberger Slough and Belmont Channel offer views of San Francisco Bay.

Proposed Trails

The two key opportunities for new non-urban trails are the Hetch Hetchy easement and Redwood Creek. Stulsaft Park also can support new nature trails.

Two Hetch Hetchy easements, each approximately 60 feet wide, traverse many of Redwood City's neighborhoods. The San Mateo County Trails Master Plan indicates a possible trail along this route to connect Edgewood County Park and Preserve to East Palo Alto's Ravenswood Open Space Preserve, and Redwood City residents have long lobbied for a trail as well. While possible improvements would be limited, given the need for the San Francisco Public Utilities Commission to have access for pipeline maintenance, the City will pursue—at a minimum—establishment of an all-weather trail surface, convenient and well-marked trail access points, and amenities such as benches and interpretative signage.

Bikeways

Local Bike Facilities

Redwood City has adopted three classes of bicycle facilities, which mirror the standard classifications used by Caltrans and commonly adopted by other jurisdictions:

- Class I Bikeway (Bike Path): A completely separate facility designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. Examples of Class I facilities in Redwood City include the Redwood Shores trail and the Bay Trail along U.S. 101 between the Whipple Avenue and Holly Street interchanges.

- Class II Bikeway (Bike Lane): A striped lane designated for the use of bicycles on a street. Vehicle parking and vehicle/pedestrian cross-flow are permitted at designated locations. Examples of Class II facilities in Redwood City include the bike lanes on Alameda de Las Pulgas between Woodside Road and Jefferson Avenue, and Industrial Way between Whipple Avenue and the San Carlos city limit
- Class III Bikeway (Bike Route): A route designated by signs or pavement markings for bicyclists within the vehicular travel lane (i.e., shared use) of a roadway. Portions of Broadway and Roosevelt Avenue are examples of bicycle routes.

As part of a pavement resurfacing project in the Redwood Shores area, the City restriped some roadways to provide bicycle facilities. This effort consisted of narrowing vehicle travel lanes to provide 5-foot wide Class II bicycle lanes on Marine Parkway and 4-foot wide shoulders on Redwood Shores Parkway and Twin Dolphin Drive. In addition, several recreational paths are provided in Redwood City, including those at Stulsaft Park and the Bay Trail. However, bicycle access to these paths from other parts of Redwood City is limited.

4.16.2 Regulatory Framework

State

Quimby Act

The Quimby Act (1975) allows cities and counties to adopt park dedication standards/ordinances requiring developers to set aside land, donate conservation easements, or pay fees towards parkland. With the anticipated population growth, the City will use impact fees from development projects to fund park construction. The City has adopted an ordinance implementing the provisions of the Quimby Act (Article XII. Parks Dedication).

State Public Park Preservation Act (California Public Resource Code Section 5400 – 5409)

The State Public Park Preservation Act is the primary instrument for protecting and preserving parkland in California. Under the act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This ensures a no net loss of parkland and facilities.

California Surplus Land Act

The California Surplus Land Act (Government Code section 54220, et seq.) currently requires local agencies, prior to disposing of property, declare the property surplus and to offer to sell or lease that property to certain entities for specified uses, including affordable housing, parks and recreation, and school uses.

Local

Redwood City Parks and Facilities Needs Assessment

The Redwood City Parks, Recreation & Community Services Parks and Facilities Needs Assessment (2019) (Parks and Facilities Needs Assessment) evaluates the City's current and

future needs with regard to parks and recreation services. The Parks and Facilities Needs Assessment identifies highly used recreational services, service gaps and underserved areas, prioritized potential improvements, and strategic direction and actionable items for successful implementation. The Parks and Facilities Needs Assessment documents existing parks and recreation services conditions. The assessment's existing conditions information has been referenced for the preparation of this EIR section.

Redwood City General Plan

The 2010 Redwood City General Plan includes the following policies and implementation programs regarding parks and recreation:

Building Community Element

Goal BC-1: Provide 3.0 acres of park space for every 1,000 residents.

Policy BC-1.1: Require parkland dedications and/or provision of on-site usable public space for significant development projects involving new residential construction.

Policy BC-1.2: Maintain development fee programs to accumulate funds for the acquisition and improvement of parks and public/community places and facilities.

Policy BC-1.3: Enhance street corridors, parkways, and public property between buildings to serve as functional recreation and green space.

Policy BC-1.4: Develop guidelines for non-residential development projects to incorporate accessible plazas, paseos, and other public places.

Policy BC-1.5: Consider all opportunities to create and acquire land for parks, community gardens, rooftop gardens, and community gathering places.

Program BC-1: Redwood City Parks and Facilities Needs Assessment. Pursue all programs set forth in the 2008 Redwood City Parks and Facilities Needs Assessment including replacing the Red Morton Park's Senior Center with an age-inclusive Wellness Center.

Program BC-2: Transit and Public Places Integration. Integrate public places with transit stops and major transit hubs (SamTrans bus stops, Caltrain station, and ferry terminal).

Program BC-3: Land Dedication and In-Lieu Fees. Continue to implement the land dedication program and in-lieu fees program to assist in the funding and development of new parks. Actively seek alternative funding sources such as State bonds and grants to supplement gaps in financing parkland acquisition and development.

Program BC-4: Urban Beautification. Develop an urban beautification program for the design/redesign and landscaping of parkways that includes provisions for linear parks. Also, consider the inclusion of public art as part of the urban beautification program.

Program BC-5: Park and Public Facility Impact Fee. Investigate the feasibility of adopting a park and public facility impact fee for non-residential development. Adopt such a requirement if demonstrated to be achievable and practical.

Program BC-7: Creative Parkland Options. Actively pursue alternative parkland options to create new parkland opportunities. Such options can include acquiring flood zone property, undergrounding parking lots and using “at grade” parking lot surfaces for parks, creating rooftop gardens and parks, etc.

Goal BC-2: Create complete neighborhoods wherein every Redwood City resident lives within easy and safe walking distance of a park or community space.

Policy BC-2.2: Prioritize acquisition of land for active parks in areas where population is anticipated to grow and/or parkland is deficient.

Policy BC-2.3: Investigate the feasibility of using additional portions of the Hetch Hetchy easement for community gardens and park space.

Goal BC-3: Ensure that public places evolve to meet the needs of changing city demographics and public interests and are accessible to all members of the community.

Policy BC-3.1: Incorporate flexible design characteristics into the renovation of existing and development of new parks and community facilities. Consider incorporating education with recreation opportunities.

Policy BC-3.2: Continue to build, renovate, and maintain parks and community facilities in a manner that is environmentally responsible.

Goal BC-4: Provide state-of-the-art community facilities that support established programs, accommodate future needs, and are accessible to all members of the community.

Policy BC-4.1: Maintain multi-functional, flexible, and complementary space at Redwood City’s community buildings and centers.

Policy BC-4.2: Maximize public facility use by sharing with nonprofit organizations, school districts, and community organizations.

Policy BC-4.3: Include in the City’s Capital Improvement Program programming and funds for timely community facility improvements.

Policy BC-4.4: Locate new community facilities in neighborhoods and centers where they will serve populations of the greatest needs. Look for opportunities to create joint-use community space at facilities owned by private organizations such as faith-based groups, service clubs, banks, and hospitals.

Policy BC-4.5: Continue to maintain or improve open hours at all libraries.

Goal BC-5: Create and maintain a system of trails, sidewalks, linear parks, and other connections that provide residents in all neighborhoods with opportunities to exercise, enjoy nature, and get to destinations without using a car.

Policy BC-5.1: Pursue establishment of a trail and associated amenities within the Hetch Hetchy easement.

Policy BC-5.2: Complete the Bay Trail through Redwood City.

Policy BC-5.3: Provide connection between regional trails, county trails, and other jurisdictions' trail systems.

Policy BC-5.4: Establish trailheads at highly visible locations and with improvements that provide access for persons with disabilities.

Policy BC-5.5: Develop a strategy for the reclaiming of Redwood Creek as a functional natural waterway with recreation amenities along its banks.

Policy BC-5.6: Provide access to water-based recreation opportunities in San Francisco Bay and along bayfront lands.

Program BC-8: Hetch Hetchy Easement Trail Plan. Develop a comprehensive plan for establishing trails and associated amenities within the Hetch Hetchy easement. Consult with the San Francisco Public Utilities Commission and San Mateo County on the plan. Seek regional, State, and federal funding and grants for trail development. Ensure that City liability issues are comprehensively addressed.

Program BC-9: Redwood Creek Boat Access. Investigate the engineering and environmental requirements for accommodating passage of small recreational boats (canoes, kayaks, and the like) under the U.S. 101 crossing of Redwood Creek. Develop a comprehensive plan for providing boat access to Downtown via Redwood Creek, and for providing for water-oriented amenities.

Program BC-10: Bay Trail Interagency Consultation. Consult with the Association of Bay Area Governments and other local organizations to complete the Bay Trail to provide continuous connections through Redwood City.

Natural Resources Element

Policy NR-6.4: Allow for appropriate public access to bayfront open space lands for recreation activities while protecting and restoring the bayfront's natural ecosystem and minimizing environmental damage, as appropriate.

4.16.3 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, implementation of the Project would have a significant impact related to recreation if it would:

- A. 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; or
- B. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.16.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

The Project does not propose revised or new policies or implementation programs that would specifically avoid or reduce significant recreation impacts.

4.16.5 Impacts and Mitigation Measures

This section describes potential recreation impacts and identifies mitigation measures, if required.

Local and Regional Recreational Facilities

Impact REC-1 – Would the Project 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?

Analysis of Impacts

The residents, employees, and visitors in the Planning Area would use nearby parks and recreation facilities. As shown in Table 4.16-1, City-owned and operated parks constitute 229.95 acres of parkland. In addition, parkland associated with schools within the City's SOI provide recreational opportunities in the Planning Area. When considering the addition of parkland associated with schools in the City's SOI, the total amount of parkland in the Planning Area is 237.45 acres.

According to the Parks, Recreation & Community Services Needs Assessment as of 2019 the City provided 2.78 acres of active parkland per 1,000 City residents, which does not meet the level of service identified in General Plan Goal BC-1, which is 3 acres of parkland per 1,000 residents (City of Redwood City 2019). As of 2020, the population within the Planning Area was 107,731 (see Table 3-2 in Chapter 3, Project Description). With the inclusion of parkland associated with schools in the SOI, the amount of parkland in the Planning Area as of 2020 was 237.45 acres. This translates to approximately 2.2 acres of parkland per 1,000 residents in 2020, which falls short of the aspirational goal identified in Goal BC-1. The proposed Project has a projected population of 131,347 persons (an increase of approximately 23,616 persons over existing (2020) conditions) at full buildout (2040), which would generate a greater demand for parks and recreational facilities in the Planning Area and decrease the level of service in the Planning Area to an extent. With the projected increase in population, the Planning Area would provide approximately 1.8 acres of parkland (including parkland in the SOI and the City's open space areas) per 1,000 residents in 2040, which remains below the aspirational goal identified in Goal BC-1.

As urban jurisdictions, such as Redwood City, continue to grow in housing and population to accommodate housing demand, a mathematical ratio for parkland is not the only factor that needs to be considered. Quality of parkland, proximity to residents, and the variety of recreational facilities and opportunities are vital components of providing adequate parkland. The adopted Building Community Element of the Redwood City General Plan contains policies and implementation programs that would ensure sufficient access to a variety of high-quality, accessible parks and recreation facilities. See Section 4.16.2 for the full text of each policy or implementation program.

Building Community Element

Policy BC-1.1: Require parkland dedications and/or provision of on-site usable public space for significant development projects involving new residential construction.

Policy BC-1.2: Maintain development fee programs to accumulate funds for the acquisition and improvement of parks and public/community places and facilities.

Policy BC-1.3: Enhance street corridors, parkways, and public property between buildings to serve as functional recreation and green space.

Policy BC-1.5: Consider all opportunities to create and acquire land for parks, community gardens, rooftop gardens, and community gathering places.

Program BC-3: Land Dedication and In-Lieu Fees

Program BC-4: Urban Beautification

Program BC-7: Creative Parkland Options

Policy BC-2.2: Prioritize acquisition of land for active parks in areas where population is anticipated to grow and/or parkland is deficient.

Policy BC-2.3: Investigate the feasibility of using additional portions of the Hetch Hetchy easement for community gardens and park space.

Policy BC-3.2: Continue to build, renovate, and maintain parks and community facilities in a manner that is environmentally responsible.

Policy BC-4.2: Maximize public facility use by sharing with nonprofit organizations, school districts, and community organizations.

Policy BC-4.4: Locate new community facilities in neighborhoods and centers where they will serve populations of the greatest needs. Look for opportunities to create joint-use community space at facilities owned by private organizations such as faith-based groups, service clubs, banks, and hospitals.

Policy BC-5.1: Pursue establishment of a trail and associated amenities within the Hetch Hetchy easement.

Policy BC-5.2: Complete the Bay Trail through Redwood City.

Policy BC-5.3: Provide connection between regional trails, county trails, and other jurisdictions' trail systems.

Policy BC-5.5: Develop a strategy for the reclaiming of Redwood Creek as a functional natural waterway with recreation amenities along its banks.

Policy BC-5.6: Provide access to water-based recreation opportunities in San Francisco Bay and along bayfront lands.

Program BC-8: Hetch Hetchy Easement Trail Plan

Program BC-9: Redwood Creek Boat Access

Program BC-10: Bay Trail Interagency Consultation

Policy NR-6.4: Allow for appropriate public access to bayfront open space lands for recreation activities while protecting and restoring the bayfront's natural ecosystem and minimizing environmental damage, as appropriate.

In coordination with the adopted Building Community Element policies and implementation programs noted directly above, the City ensures that a development project meets its parkland dedication requirements through the development review process. A project that does not comply with the parkland dedication requirement would not be approved. Further, all new dwelling units developed under the proposed Project would be subject to Development Impact Fees (DIF) fees, as adopted, and the City's Quimby Ordinance. These parks and recreation funding mechanisms would offset the incremental increase in demand for park facilities from implementation of the Project. Therefore, future development of public parks in the Planning Area plus individual project payment of City adopted park in-lieu fees and/or dedication of parkland to the City in fee title and free of encumbrances would ensure that impacts on parks and recreational facilities is **less than significant**.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Expansion of Recreational Facilities

Impact REC-2 – Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Analysis of Impacts

The existing General Plan Building Community Element and Natural Resources Element contains policies and implementation programs that would address new recreational facilities and potential impacts from the construction of new recreational facilities. The applicable General Plan policies and implementation programs related to addressing the impacts of new and renovated parks and recreational facilities are provided below.

Building Community Element

Policy BC-3.2: Continue to build, renovate, and maintain parks and community facilities in a manner that is environmentally responsible.

Natural Resources Element

Policy NR-6.4: Allow for appropriate public access to bayfront open space lands for recreation activities while protecting and restoring the bayfront’s natural ecosystem and minimizing environmental damage, as appropriate.

The Project does not propose the construction or expansion of recreational facilities. Should open space/recreation improvements associated with development under the Project be proposed, these improvements would mostly likely take place on already developed or previously developed property and/or would create little or no additional impacts within other issue areas (e.g., noise, air quality, traffic). Further, any environmental issues associated with the discretionary, non-exempt construction of potential new facilities would be subject to environmental review on a project-by-project basis pursuant to CEQA. Through the routine planning and environmental impact assessment process, significant environmental impacts that might result from park or recreational facility development would be evaluated, and potential mitigation measures would be identified. Therefore, because the Project does not include construction or expansion of recreational facilities which might have an adverse physical effect on the environment. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.16.6 References

City of Redwood City. 2010. City of Redwood City. 2010. A New General Plan for Redwood City. Draft Environmental Impact Report. May 2010.

_____. 2010. Redwood City General Plan. October 11, 2020. Accessed August 26, 2022 at <https://www.redwoodcity.org/departments/community-development-department/planning-housing/planning-services/general-plan-precise-plans/general-plan>.

_____. 2019. Parks, Recreation & Community Services Parks and facilities Needs Assessment. Accessed August 25, 2022 at [RWC NeedsAssessment Final PRINT.indd \(redwoodcity.org\)](#).

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4.17 Transportation

This EIR chapter addresses transportation and traffic impacts associated with the proposed Project. Specifically, this chapter analyzes transportation and traffic impacts identified by the CEQA Guidelines: whether the FGPUZA will conflict with a program plan, ordinance or policy addressing the circulation system; will conflict with or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b); will substantially increase hazards due to a geometric design feature or incompatible uses; or will result in inadequate emergency access. This chapter is based on the results of the transportation analysis (TA) conducted for the City of Redwood City by Fehr & Peers, transportation consultants, and was prepared to meet the requirements of CEQA and the Redwood City Transportation Analysis Manual (TAM) (July 21, 2020).¹

4.17.1 Environmental Setting

Project and Planning Area

The City of Redwood City is located within the geographic boundary of San Mateo County bordered by the cities of Menlo Park, Atherton, Woodside, San Carlos, Foster City, and unincorporated land. Regional access is provided by U.S. Highway 101 (U.S. 101), Interstate 280 (I-280), State Route 84 (SR 84, also known as Woodside Road), and SR 82 (also known as El Camino Real). Figure 3-2 in Chapter 3, Project Description, of this EIR shows the proposed Project planning area, which includes both the City boundary and the Redwood City sphere-of-influence, and the surrounding transportation network.

The proposed Project consists of new residential land uses distributed throughout the proposed Project planning area. The proposed Project would provide for a net increase of 11,277 residential units (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period). This includes an additional 13,078 multi-family units and 506 accessory dwelling units (ADUs), and a decrease of 2,307 single-family units within the associated planning areas.

The Project does not propose changes to the roadway, transit, pedestrian, or bicycle transportation network. However, a local transportation analysis (LTA) report will be prepared as a standalone document to provide additional information regarding vehicle, transit, bicycle, and pedestrian network operations and constraints consistent with the City's TAM. The separate LTA is prepared for General Plan and the City/County Association of Governments (C/CAG) of San Mateo County Congestion Management Plan (CMP) consistency purposes and is not prepared for CEQA purposes.

¹Redwood City Transportation Analysis Manual (TAM) (July 21, 2020). Available online at: <https://www.redwoodcity.org/home/showpublisheddocument?id=22106>

Roadway Network

This section describes the existing regional highway system and the local street circulation system for Redwood City. The regional highway system and street typologies described in this section are illustrated in Figure 4.17-1.

Regional Access

Regional access is provided by United States Highway 101 (U.S. 101), Interstate 280 (I-280), State Route 84 (SR 84), also known as Woodside Road within the City, and SR 82 (El Camino Real).

U.S. 101 is a major north-south regional route that runs directly through Redwood City and serves as the primary commute route for the San Francisco Peninsula. Interchanges at Whipple Avenue, Woodside Road, and Marsh Road (Menlo Park) connect various parts of Redwood City with US 101. Located further north, interchanges at Marine Parkway/Ralston Avenue and Holly Street/Redwood Shores Parkway link US 101 to the Redwood Shores area.

I-280 is located along the western edge of the city and serves as a more scenic north-south commute route compared to US 101. Interchanges at Farm Hill Boulevard, Woodside Road, and Edgewood Road provide the most direct connections to Redwood City.

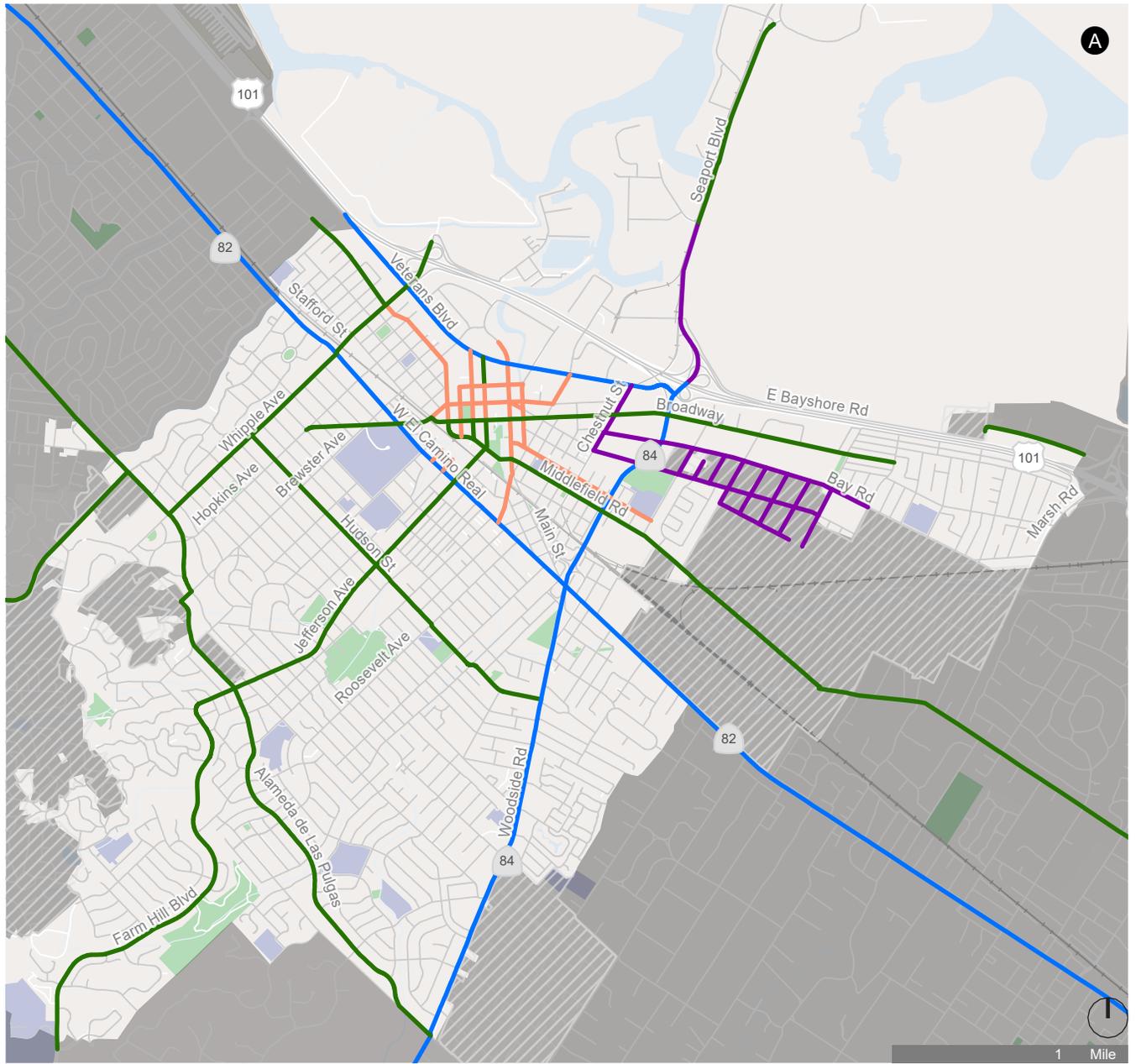
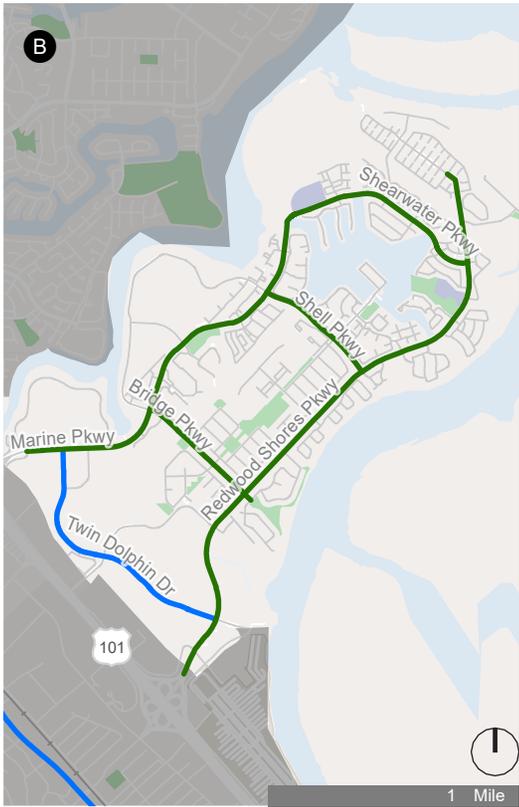
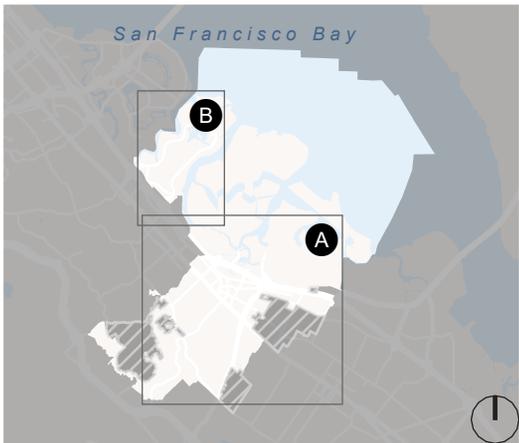
Woodside Road (SR 84) runs in the east-west direction through Redwood City, providing connection with I-280, El Camino Real, and U.S. 101, as well as other local roadways.

El Camino Real (SR 82) is a major north-south arterial roadway that travels parallel to the nearby Caltrain tracks and U.S. 101 through Redwood City and other local roadways.

Local Street System

The local street system in Redwood City is organized in a hierarchy of five street typologies according to the Citywide Transportation Plan (RWCmoves) (2018). Street typologies categorize streets by purpose, location, typical land uses to which they provide access, appropriate travel speeds, and the need to accommodate multiple travel modes and various users. The street typology includes the following roadways:

- Boulevard
- Connector
- Neighborhood Main Street
- Neighborhood
- Industrial Street



Source: Fehr & Peers, 2022

- | | | | |
|---------------------|----------|-----------------------------|--------------------------|
| Redwood City Limits | Schools | Roads Classification | Neighborhood Main Street |
| Sphere of Influence | Railroad | Boulevard | Neighborhood |
| Parks | | Connector | Industrial Street |

**Figure 4.17-1:
Existing Roadway System**

4.17 – Transportation

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Boulevard. Boulevards are major roadways that typically have four to six travel lanes (both directions combined) and accommodate larger vehicle volumes, while providing wide sidewalks and dedicated bike facilities (such as bike lanes and cycle tracks). Creating an inviting corridor for all roadway users helps to encourage development and increases commercial activity along corridors originally developed for cars. Boulevards serve as primary routes to destinations within the community or through the City. As such, boulevards are focused on ensuring person throughput, not only for cars and trucks, but also for pedestrians and bicyclists. Examples of boulevards include El Camino Real, Veterans Boulevard, and Woodside Road.

Connector. This versatile street type is a true multi-purpose roadway designed to move vehicles while providing good access for people biking and walking. They provide connections to boulevards or other major through routes in the City. Connectors generally have two to three travel lanes and provide on-street bicycle facilities or on-street parking, in addition to sidewalks. As street width permits, connectors may have four travel lanes and/or provide both on-street parking and on-street bicycle facilities. Examples of connectors include Farm Hill Boulevard, Alameda de las Pulgas, Broadway Street, Whipple Avenue, Middlefield Road, Hudson Street, and Jefferson Avenue.

Neighborhood Main Street. Neighborhood Main Streets are where mobility related to higher density commercial and housing converge into a single corridor where people do business, live, and interact with each other. These streets are typically not used as through routes, but rather serve as destination corridors, with lower traffic speeds, higher pedestrian and bicycle volumes, and frequent turnover of on-street parking. Neighborhood Main Streets have narrower cross-sections that accommodate wider sidewalks and typically two to three travel lanes. Design is focused on providing pedestrian and bicycle access from nearby parking lots/garages and transit centers to the land uses along these streets through dedicated facilities, traffic calming, and reduced roadway crossing distances. Examples of neighborhood main streets include Bradford Street, Main Street, Marshall Street, Stambaugh Street, and Winslow Street.

Neighborhood Street. Local streets in residential neighborhoods provide mobility space for people to access their living space, recreational opportunities through play, walking, and biking; and offer public areas for neighbors to gather and interact with each other. Designed properly, a neighborhood street can become the meeting space for a group of residents. In addition, these streets should provide easy and safe access between residential and nearby commercial areas, schools, parks, and community centers. These streets typically have two travel lanes and discourage through traffic through traffic calming. Examples of neighborhood streets include Maple Street, Roosevelt Avenue, Redwood Avenue, Virginia Avenue, Hopkins Avenue, Brewster Avenue, and Arguello Street.

Industrial Street. Industrial corridors are designed to serve the needs of businesses that produce, construct, deliver, or repair products and require access by larger and heavier vehicles. Common vehicles often include vans, single unit trucks, and smaller semi-trucks. As industrial areas tend to be spread out, workers often access them by private vehicle, but accommodations should be made for those choosing to walk and bike or use transit access along major corridors. Industrial streets maintain medium speeds (30 to 35 mph) and have two to four travel lanes, limited bicycle facilities, and standard pedestrian facilities. Examples of industrial streets include Seaport Boulevard, Bay Road, 2nd Avenue, and Charter Street.

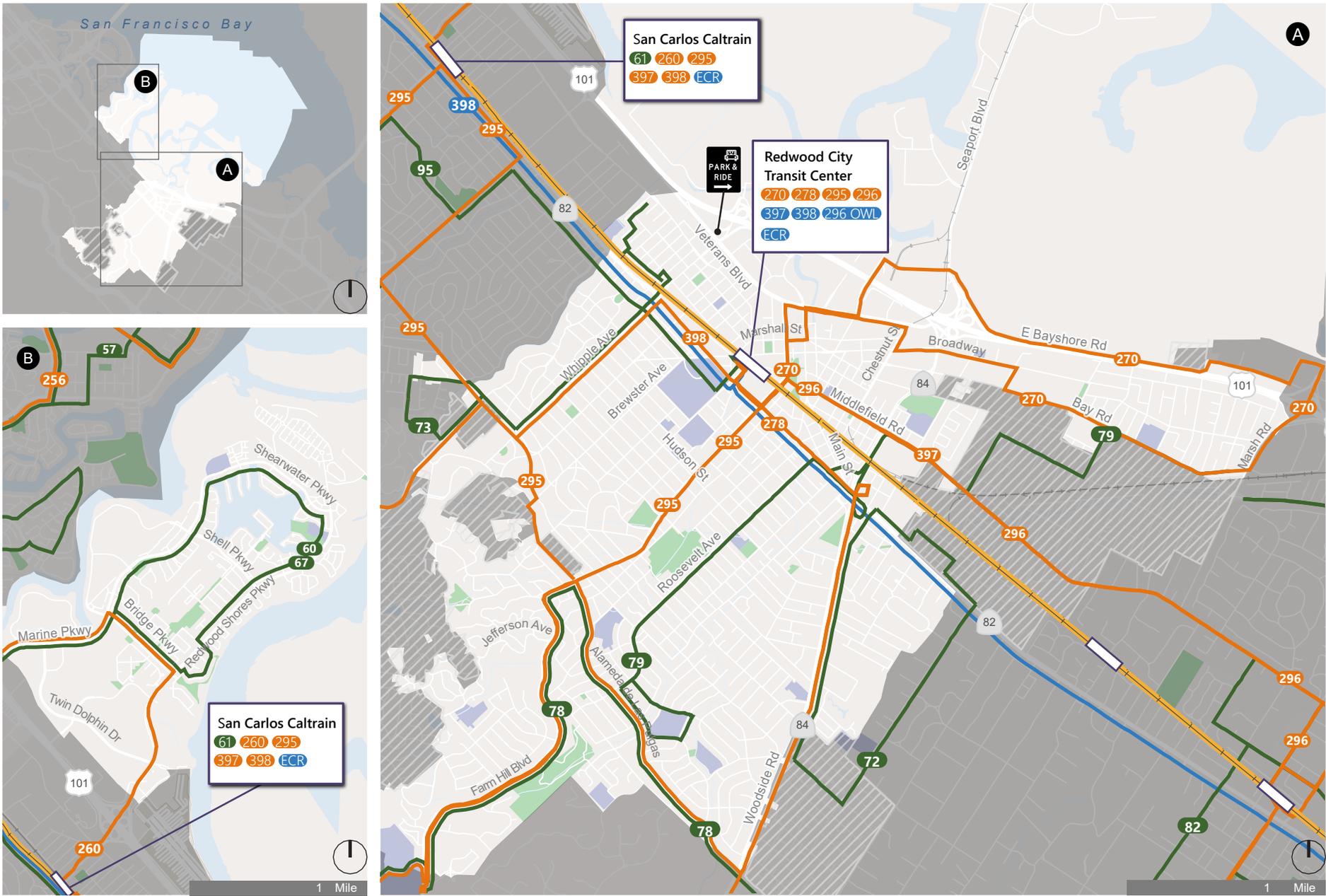
Local Public Transportation System

Transit and community shuttle service in Redwood City and surrounding communities is provided by Caltrain, SamTrans, and Commute.org. Figure 4.17-2 and Figure 4.17-3 show the existing transit facilities, bus routes, and free public shuttle networks in Redwood City. Table 4.17-1 provides a summary of this information.

Commuter Rail Service. Caltrain provides passenger rail service between San Francisco and San José with extended service to Gilroy during peak weekday commute periods. Within the City, the rail line is parallel to and north of El Camino Real. The Redwood City Caltrain Station is located downtown, between Jefferson Avenue and Broadway (and is sometimes referred to locally as the Sequoia Station). During commute periods, Caltrain offers express service (“Baby Bullet”) between downtown San José and San Francisco, which allows the trip between San Francisco and San José to be made in one hour. The Baby Bullet service stops at a limited number of stations, including Redwood City. Caltrain also offers local service which serves all stations and limited-stop service which serves more stations than Baby Bullet but not all stations. All trains stop at the Redwood City Caltrain Station.

In 2015, which is the base year of the travel demand model used for the VMT analysis discussed later in this chapter, the average mid-weekday passenger boardings at Redwood City Caltrain Station was around 3,230 with a system-wide ridership of just over 58,000. In 2019, the most recent pre-COVID information available, the average mid-weekday passenger boardings at the Redwood City Caltrain Station was around 4,220 with a system-wide ridership of approximately 64,000. The system-wide ridership in 2020 was roughly 25,000, and there was no specific ridership information for Redwood City Transit Center in 2020. The decrease in system-wide ridership in 2020 is due to COVID-19 and the corresponding stay-at-home orders.

SamTrans Bus Service. San Mateo County Transit District (SamTrans) provides bus service to Redwood City and other communities in San Mateo County. In August 2022, SamTrans implemented a series of changes to the SamTrans bus network through a project known as *Reimagine SamTrans*. Based on the latest *Reimagine SamTrans* transit service plan, fourteen SamTrans bus routes [60 (school days only), 67 (school days only), 72 (school days only), 73 (school days only), 78 (school days only), 79 (school days only), 260, 270, 278, 295, 296, 296 OWL, 397, 398] and the El Camino Real (ECR) express bus route serve Redwood City. El Camino Real, with SamTrans’ ECR service, qualifies as a high-quality transit corridor since the frequency of service is 15-minutes or less during the morning and evening peak commute periods. Within the last few years, routes KX, 95, 261, 273, 274, 275, 276, 297 operating in Redwood City have been suspended or replaced due to transit service changes.

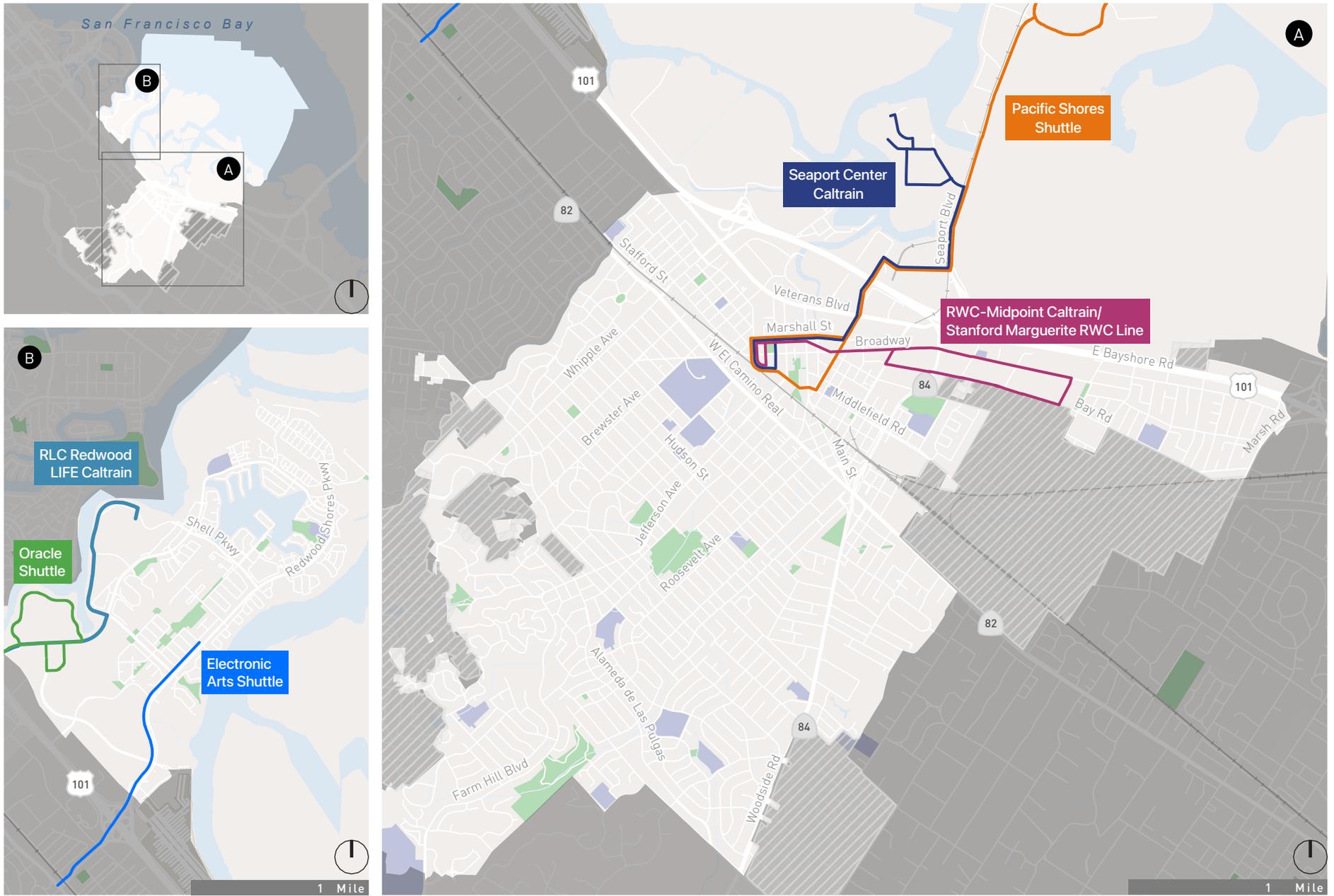


Source: Fehr & Peers, 2022

- Redwood City Limits
- Schools
- SamTrans School-day Only Routes
- SamTrans Routes connecting to Caltrain Stations
- Sphere of Influence
- Railroad
- Caltrain Lines and Stations
- SamTrans Routes connecting to BART and Caltrain Stations
- Parks
- Park & Ride Lot

**Figure 4.17-2:
Existing Transit Network**

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Source: Fehr & Peers, 2022

- Redwood City Limits
- Schools
- Sphere of Influence
- Parks
- Railroad

**Figure 4.17-3:
Existing Community Shuttle Network**

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Community Shuttles. Commute.org manages community shuttles that are free to the public, which include the Midpoint (Redwood City Caltrain) shuttle, Redwood LIFE Caltrain (Belmont Caltrain) shuttle, Seaport Centre (Redwood City Caltrain) shuttle, Pacific Shores shuttle, and shuttles to major employers including Electronic Arts and Oracle in Redwood Shores. Stanford University’s Marguerite Shuttle RWC Line supplements Commute.org’s Midpoint shuttle by providing service between the AM and PM peak commute periods. Some area employers, such as Electronic Arts, Meta, and Google, also operate private bus services for their employees that work or live in Redwood City.

**Table 4.17-1:
Existing Transit Service**

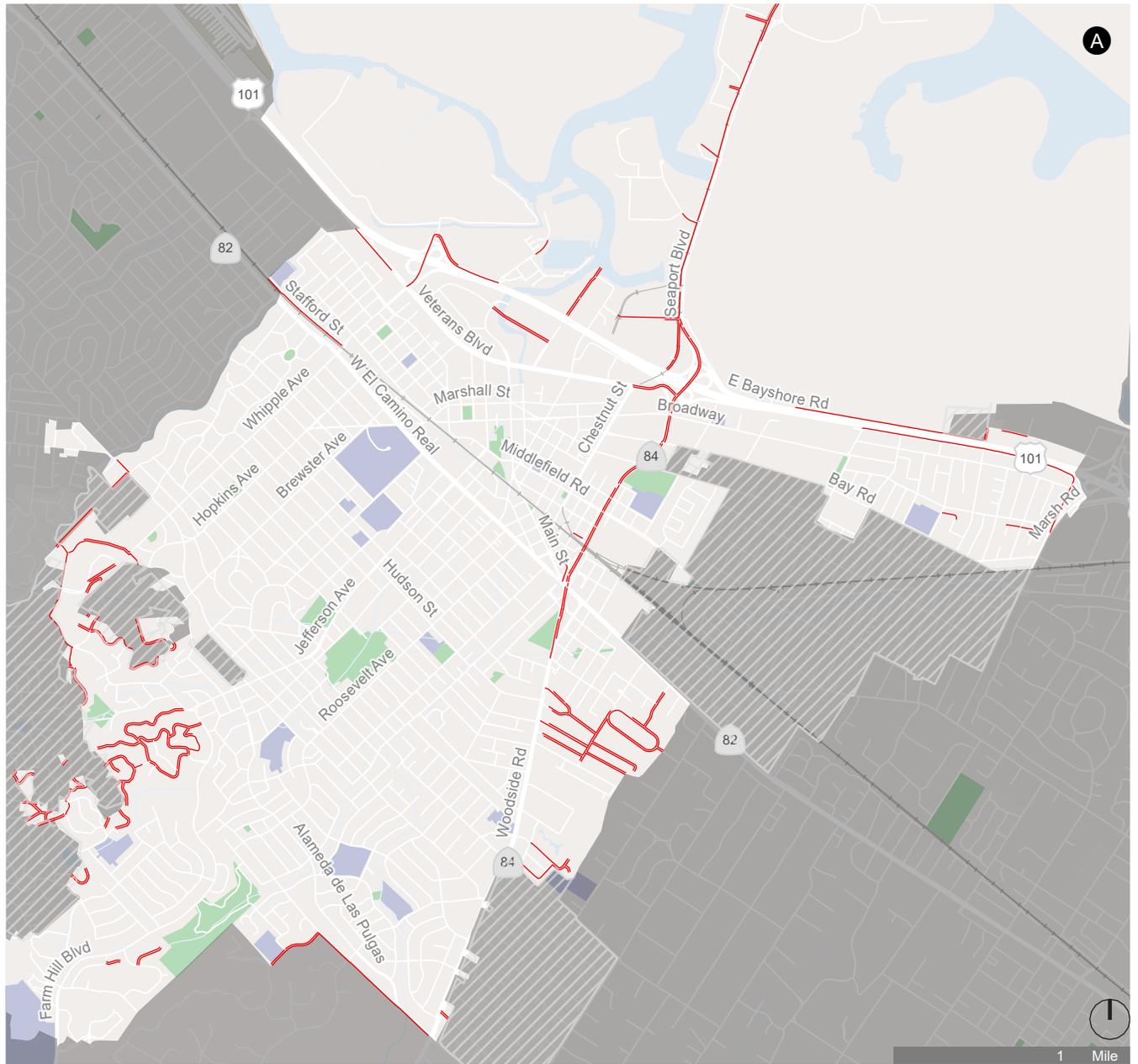
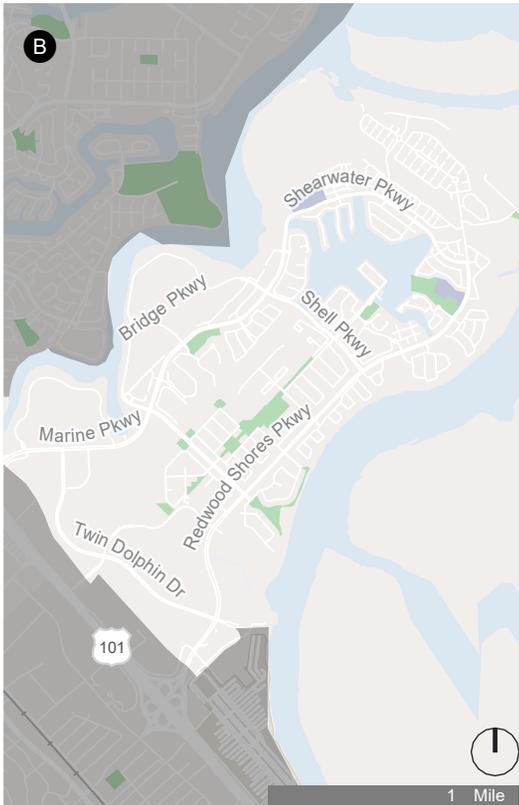
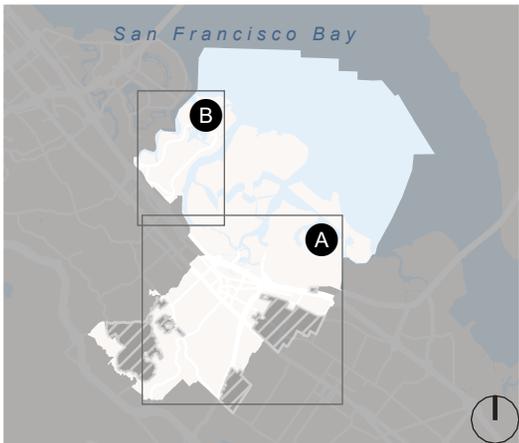
Route	From	To	Weekday		Weekends	
			Operating Hours ¹	Peak Headway (minutes)	Operating Hours ¹	Peak Headway (minutes)
SamTrans Local Bus Routes						
260	San Carlos Caltrain	Alameda/Ralston	6:00 am – 7:00 pm	60	8:00 am – 7:30 pm ²	60 ²
270	Redwood City Transit Center (Loops)	Redwood City Transit Center (Loops)	6:30 am – 7:10 pm	60	7:30 am – 7:15 pm ²	60 ²
278	Redwood City Transit Center	Cañada College	6:20 am – 8:45 pm	60	7:20 am – 7:20 pm	60
295	San Mateo Caltrain	Redwood City Transit Center	6:20 am – 7:00 pm	60	n/a	n/a
296	Redwood City Transit Center	Bayshore/Donohoe	5:15 am – 10:40 pm	20	7:45 am – 8:00 pm	30
296 OWL	Redwood City Transit Center	Palo Alto Transit Center	10:00 pm – 5:20 am	30	6:40 pm – 8:30 am	60
SamTrans Express Bus Routes						
ECR	Palo Alto Transit Center	Daly City BART	4:00 am – 1:50 am	15	4:45 am – 2:25 am	15
397 OWL	San Francisco	Palo Alto Transit Center	12:45 am – 6:40 am	60	12:45 am – 6:40 am	60
398	San Francisco	Redwood City Transit Center	6:00 am – 11:30 am, 3:40 pm – 9:20 pm	Two in the morning, two in the evening	n/a	n/a
SamTrans School Routes						

**Table 4.17-1:
Existing Transit Service**

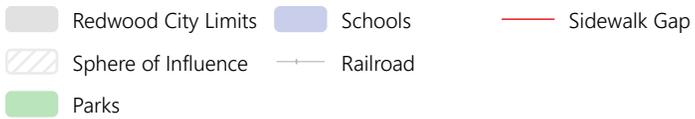
Route	From	To	Weekday		Weekends	
			Operating Hours ¹	Peak Headway (minutes)	Operating Hours ¹	Peak Headway (minutes)
60	Marine/Island	Ralston Middle School	6:50 am - 8:00 am, 3:10 pm – 4:40 pm	One in the morning, one in the afternoon	n/a	n/a
67	Marine/Island	Ralston Middle School	7:00 am – 7:50 am, 3:10 pm – 4:00 pm	Three in the morning, four in the afternoon	n/a	n/a
72	Northumberland/Marlborough	Selby Lane School	7:40 am – 8:00 am, 2:40 pm – 3:00 pm	One in the morning, one in the afternoon	n/a	n/a
73	G Street/Industrial	Clifford Elementary School	7:40 am – 8:00 am, 3:00 pm - 3:20 pm	One in the morning, one in the afternoon	n/a	n/a
78	Cañada College	Alameda/Hull	7:55 am – 8:15 am; 2:55 pm – 3:12 pm (Wed only); 4:00 pm – 4:17 pm (M, Tu, Th, and Fri)	One in the morning, one in the afternoon	n/a	n/a
79	Florence/17th	Kennedy Middle School	7:40 am – 8:10 am, 3:25 pm – 3:55 pm	One in the morning, one in the afternoon	n/a	n/a
Caltrain						
All routes	Gilroy/San José	San Francisco	4:20 am – 1:45 am	10	7:10 am – 1:50 am	60
Source: SamTrans and Caltrain, August 2022.						
Notes:						
1. Operating hours rounded to the nearest 5 minutes.						
2. No Sunday service.						

Existing Pedestrian Facilities

Redwood City has many amenities that make walking an important and accessible mode of travel, including level terrain, temperate weather, and numerous destinations that are attractive to walkers. Pedestrian facilities in Redwood City consist of sidewalks, pathways, crosswalks, and pedestrian signals at signalized intersections, in addition to lighting, trees, and curb ramps, which also contribute to the quality of the pedestrian environment. As shown in Figure 4.17-4, numerous destinations in Redwood City are connected by a system of sidewalks and only a few roadway segments are missing sidewalks on both sides of the street.

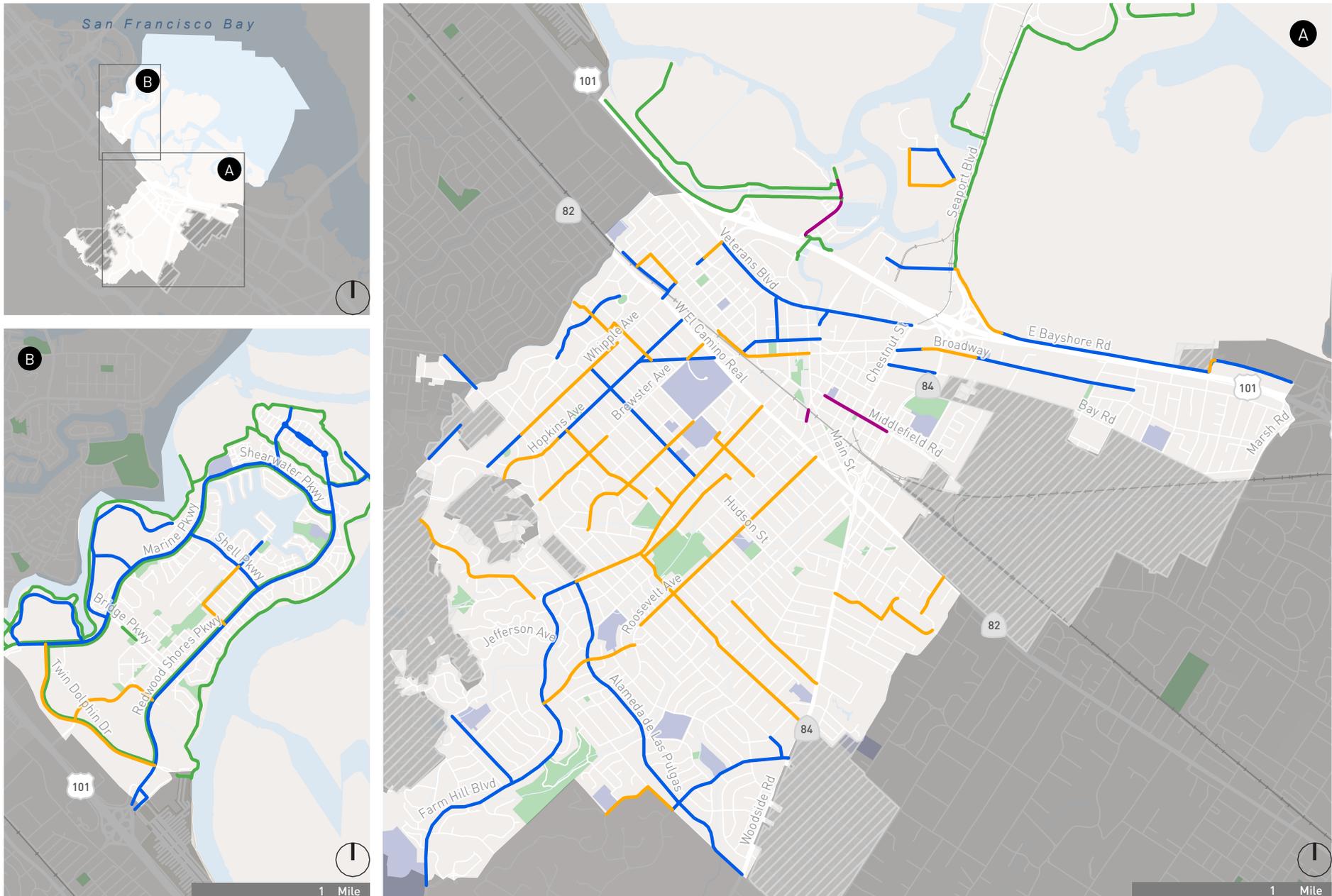


Source: Fehr & Peers, 2022



**Figure 4.17-4:
Existing Pedestrian Network**

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Source: Fehr & Peers, 2022

- Redwood City Limits
- Schools
- Sphere of Influence
- Parks
- Railroad
- Existing Bicycle Routes
- Class I: Bike Paths/Trails Path
- Class II: Bike Lanes
- Class III: Bike Routes
- Class IV: Cycle Tracks

**Figure 4.17-5:
Existing Bicycle Network**

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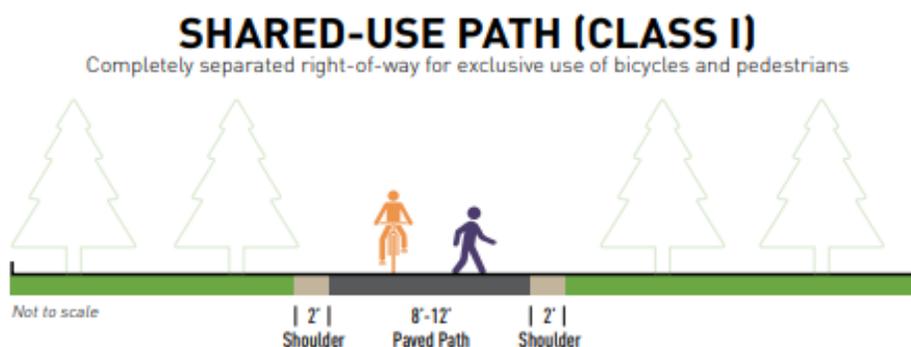
Redwood City’s downtown is a particularly attractive destination for pedestrians, with many dining, retail, and entertainment destinations. As a result, the highest levels of pedestrian activity are mostly located along Broadway in the downtown area.

Existing Bicycle Facilities

Redwood City has a bicycle facilities network that provides dedicated and shared street space for bicycling comprised of bike routes or boulevards, bike lanes, and separated bike paths or trails. Figure 4.17-5 presents existing bicycle facilities in Redwood City.

Bikeway planning and design in California typically relies upon guidelines and design standards established by California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design). Redwood City uses these guidelines to define four general bikeway facility classifications, as outlined below.

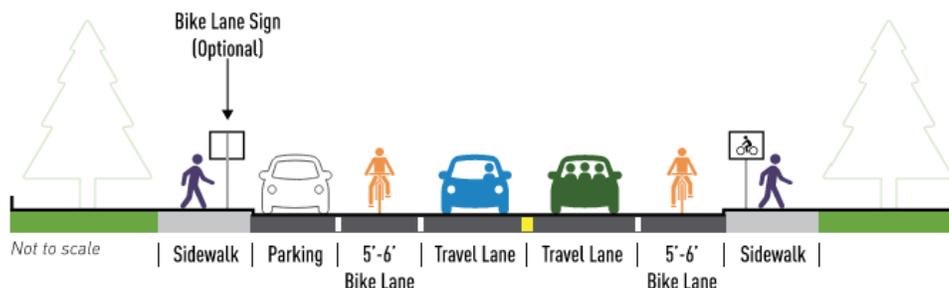
- Class I Bikeways (Shared-Use Paths) provide a completely separate right-of-way and are designated only for bicycle and pedestrian use. Shared-use paths serve corridors where there is enough right-of-way, or space, to allow them to be constructed or where on-street facilities are not appropriate due to vehicular volumes, speeds, or other roadway characteristics. Examples of Class I paths in Redwood City as shown in RWC Walk Bike Thrive (2022) are along the Bay Trail around Belmont Slough, Marine Parkway, Shearwater Parkway, Redwood Shores Parkway, and Seaport Boulevard.



- Class II Bikeways (Bicycle Lanes) are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically five to six feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-traffic are permitted. Examples of Class II lanes in Redwood City as shown in RWC Walk Bike Thrive (2022) are on Edgewood Road, Alameda de las Pulgas south of Jefferson Avenue, Veterans Boulevard and Arguello Street.

BICYCLE LANE (CLASS II)

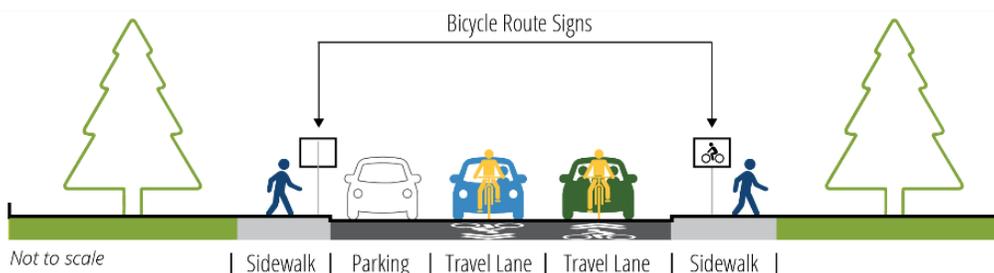
On-street striped lane for one-way bike travel



- Class III Bicycle Routes are designated by signs or pavement markings for shared use with motor vehicles but have no separated bike right-of-way or lane striping. Bike routes serve either to a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors. Examples of Class III as shown in Walk Bike Thrive are on Virginia Avenue, Valota Road, Charter Street, Canyon Road, Brewster Avenue, and Middlefield Road.
- Class III Bicycle Boulevards are “quiet” or “slow” streets, with low motor-vehicle volumes and speeds, designed to prioritize bike travel by discouraging through trips by cars. Bike boulevards share space with cars but along with traffic calming improvements that gives priority to bicyclists. Currently, the only bike boulevard in Redwood City is on Vera Avenue. Example Class III bikeways that will provide additional bicycle access in the City as shown in RWC Walk Bike Thrive (2022) are proposed along Bay Road south of Second Street, Elwood Street, and Vera Avenue.

BIKE ROUTE / BOULEVARD (CLASS III)

Shared on-street facility



- Class IV Bikeways (Separated Bikeways) provide a right-of-way designated exclusively for bicycle travel in a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, flexible posts, raised curbs, or parked cars. As shown in RWC Walk Bike Thrive (2022), there currently are Class IV separated bikeways exists on Middlefield Road between Woodside Road and Maple Street and on Maple Street, between Lathrop and the railroad tracks.

CYCLE TRACK/SEPARATED BIKEWAY (CLASS IV)

Physically separated bike lane



4.17.2 Regulatory Framework

State

Senate Bill 743

SB 743, signed into law in 2013, required CEQA lead agencies to shift away from using traditional congestion-based level of service (LOS) standards and automobile delay to determine significant traffic impacts. As a result of SB 743, the CEQA guidelines have been updated to reflect Vehicle Miles Traveled (VMT) as the primary metric for evaluating transportation impacts. Pursuant to Public Resources Code Section 21099(b)(2), “automobile delay, as described solely by level of service of similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment.” The California Governor’s Office of Planning and Research (OPR) issued revised *CEQA Statute & Guidelines* in December 2018 along with a *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) to assist practitioners in implementing the CEQA Statute & Guidelines to use VMT as the new metric. Under the revised *CEQA Statute & Guidelines*, vehicle LOS will no longer be used as a determinant of transportation environmental impacts. The City has implemented SB 743 in their *Redwood City TAM*, which provides specific guidance for VMT analysis and determination of significant impacts.²

California Department of Transportation (Caltrans)

Caltrans has not established formal VMT significance thresholds, though in May 2020 they released the *VMT-Focused Transportation Impact Study Guide* (TISG) that refers to guidance provided in the OPR Technical Advisory, which recommends VMT per capita thresholds 15 percent below existing city or regional levels. The Caltrans TISG also refers to OPR Technical Advisory guidance on the types of projects that can be presumed to have a less-than-significant

²While LOS is no longer used to determine CEQA impacts, Redwood City and the City/County Association of Governments (C/CAG) of San Mateo County still require LOS analysis for select intersections under their development approval processes.

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transportation impact. The TISG reiterates that automobile delay is no longer considered a significant impact on the environment within CEQA transportation analysis.

Regional

San Mateo Countywide Transportation Plan 2040

The San Mateo Countywide Transportation Plan 2040 is a long-range, comprehensive transportation planning document intended to articulate clear transportation planning goals and objectives that promote consistency and compatibility among all transportation plans and programs within the county. The plan supports an integrated system-wide approach to transportation planning that gives proper consideration to the countywide transportation network as a whole, not just in its constituent parts, and sets forth a coordinated planning framework for systematic transportation planning and identifying and resolving transportation issues.

San Mateo County Comprehensive Bicycle and Pedestrian Plan

The City/County Association of Governments of San Mateo County (C/CAG), with support from the San Mateo County Transportation Authority, developed the San Mateo County Comprehensive Bicycle and Pedestrian Plan in 2021 to improve walking and bicycling conditions in San Mateo County. The Plan strives to make biking and walking safer and more comfortable for all by promoting a connected network of biking and walking facilities based on the best practices in the field, which will also improve health, accessibility, and livability throughout the county. The Plan includes goals to establish a connected network of facilities for bicyclists and pedestrians; promote more people bicycling and walking for transportation and recreation; improve safety for walking, bicycling, and accessing transit; advance Complete Streets principles and the accommodation of all roadway users; develop, prioritize, and fund projects to advance equity; and promote collaboration and technical support.

Local

City of Redwood City General Plan

The City of Redwood City General Plan includes the following circulation goals in the Built Environment Element that aim to maintain a multimodal transportation system and encourages active transportation, transit use, and appropriate curb management/parking implementation:

- Goal BE-25: Maintain a local transportation system that balances the needs of bicyclists, pedestrians, and public transit with those of private cars.
- Goal BE-26: Improve walking, bicycling, and electric bicycle/scooter facilities to be more convenient, comfortable, and safe, and therefore more common transportation modes in Redwood City.
- Goal BE-27: Create conditions to improve utilization of existing public transportation services to increase ridership.
- Goal BE-28: Provide maximum opportunities for upgrading passenger rail service for faster and more frequent trains, while making this improved service a positive asset to Redwood City that is attractive, accessible, and safe.

- Goal BE-29: Maintain the city’s street network to promote the safe and efficient movement of people.
- Goal BE-31: Encourage developments and implementation of strategies that minimize vehicle trips and vehicle miles traveled.

Downtown Precise Plan

The Downtown Precise Plan (DTPP) describes the vision for the future of Downtown, regulates private development, and recommends potential future City projects. The DTPP includes the following transportation goals and guiding principles:

- A: Revive Downtown by creating a beautiful and memorable urban district interwoven with the City’s identity.
- C: Create a network of great public open spaces.
- D: Provide the choice of “convenience living”.
- F: Create a strong employment district and “vital center”.
- G: Make pedestrians the priority.
- H: Integrate transit and bicycle use.
- I: Provide “just enough” parking and create a “park-once and walk” district.

RWCmoves

RWCmoves (July 2018) is the Citywide Transportation Plan and serves as a guiding document for the City in improving transportation. RWCmoves supplements the Circulation Element of the General Plan. The goals of RWCmoves are:

- Eliminate traffic fatalities and severe injuries for all modes by 2030.
- Create a walking- and bicycling-friendly community that provides a safe, balanced, and convenient transportation system.
- Provide seamless connections and improved street access to all areas within the City, especially along mixed-use corridors.
- Embrace innovation in all forms of emerging technologies, especially in ways to creatively manage congestion and the transportation system.
- Reach over 50 percent of all trips being by non-driving modes by 2040; remaining automobile trips should be shared rides and/or zero emission trips.
- Invest in projects that support a resilient, equitable, and sustainable transportation system.

The Redwood City Transportation Analysis Manual (TAM) is an appendix to RWCmoves and provides the technical approach for evaluating projects and their effects on the City’s transportation system and services. The TAM provides the required methodology and thresholds with which to evaluate VMT impacts consistent with the latest CEQA Guidelines.

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RWC Walk Bike Thrive

RWC Walk Bike Thrive (June 2022) encompasses the Vision Zero Plan, Pedestrian Master Plan, and Bicycle Master Plan identified in RWCmoves. RWC Walk Bike Thrive aims to make walking and bicycling in Redwood City safer, easier, and more popular while improving traffic safety for pedestrians, bicyclists, transit users, drivers, and other users of the transportation system throughout the City. RWC Walk Bike Thrive identifies and prioritizes the projects and programs that most enhance transportation safety, mobility, equity, and access for everyone traveling in Redwood City, and shares the same goals of RWCmoves.

4.17.3 SIGNIFICANCE THRESHOLDS

Per the CEQA Guidelines, as implemented by the *Redwood City TAM*, implementation of the Project would have a significant impact related to transportation if it would:

- a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities;
- b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b);
- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- d) Result in inadequate emergency vehicle access.

Each of these thresholds and how they are applied in Redwood City are discussed below.

4.17.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended General Plan Elements that would avoid or reduce significant Transportation impacts.

4.17.5 Impacts and Mitigation Measures

Scope of Analysis

Plan Conflicts (CEQA Threshold “a”)

Based on the City’s guidelines, the Project would cause a significant transportation impact if an element of the Project conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities. Relevant policy document include:

- Redwood City General Plan (2010),
- RWCmoves (2018),

- Citywide Bicycle & Pedestrian Master Plan and Vision Zero Action Plan (RWC Walk Bike Thrive) (June 2022),
- San Mateo Countywide Transportation Plan 2040 (2017),
- San Mateo County Comprehensive Bicycle and Pedestrian Plan (2021).

VMT Impacts (CEQA Threshold “b”)

The VMT analysis methodology utilizes the procedures and thresholds of significance in the adopted *Redwood City TAM*, which are summarized below.³

CEQA Analysis Project Screening. In the first step, the Redwood City TAM applies specific screening criteria for projects presumed to have a less-than-significant impact, eliminating the need to conduct a VMT analysis for CEQA transportation purposes. The Redwood City TAM includes a detailed screening criteria related to Transit Priority Areas (TPAs), affordable housing projects, small projects, locally-serving public facilities, neighborhood-serving retail projects, and childcare projects, as well as projects that are in a Transit Priority Area (TPA). Each component of a mixed-use project is considered separately and each of the project’s individual land uses is compared to the screening criteria.

Projects that do not meet these potential screening approaches would require a VMT assessment. Specifically, a VMT analysis that evaluates the project-generated VMT and potentially the project’s long-term effect on VMT using boundary VMT would be required as specified in the *Redwood City TAM*. For illustrative purposes Figure 4.17-6 depicts both project-generated VMT and boundary VMT. Below is a summary of the City’s impact criteria for project-generated and boundary method VMT.

Project-Generated VMT. Since the proposed Project only includes residential land uses, the project-generated VMT estimates for the Redwood City Focused General Plan Update would be evaluated using the residential threshold in the Redwood City TAM. The residential VMT threshold of 10.5 home-based VMT per resident identified in the Redwood City TAM was developed based on model runs using the base year 2015 C/CAG-VTA Model. As noted under the *Analysis Scenarios* section below, the 2015 C/CAG-VTA Model was updated as part of the Downtown Precise Plan (DTPP) General Plan Amendment (GPA) projects to reflect Year 2021 development conditions in the downtown. Since these baseline model land use updates change countywide VMT, the residential VMT threshold was re-calculated to present a true comparison to baseline conditions. Based on the updated 2015 C/CAG-VTA Model used for this analysis, a significant VMT impact would occur if the citywide home-based VMT per resident for Cumulative (2040) with Project Conditions would exceed a level of 15% below the countywide baseline home-based VMT per resident rate. The threshold applied in this analysis is 15% below the existing countywide

³An induced VMT threshold is not presented because the Redwood City Focused General Plan Update is not adding roadway capacity.

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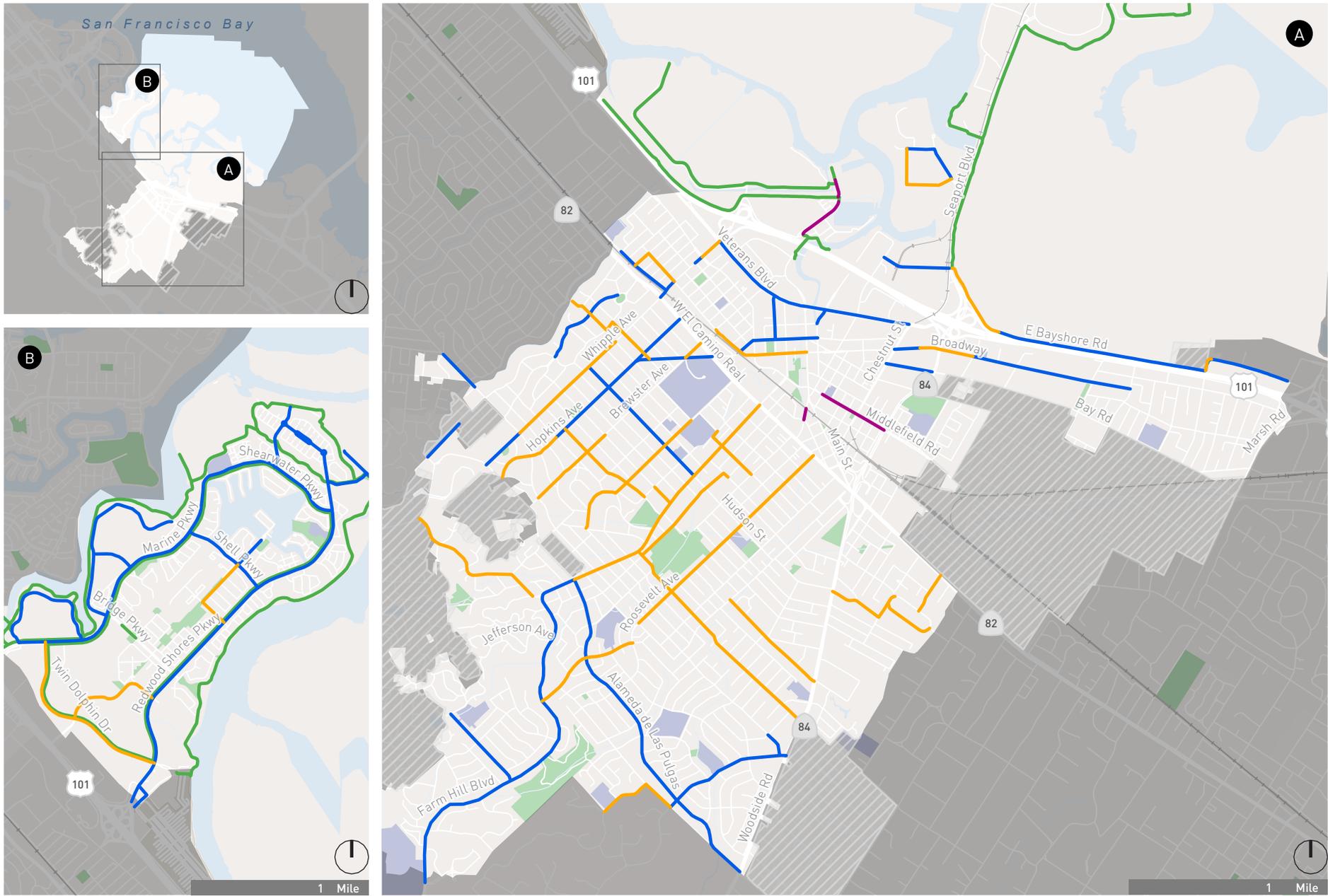
VMT rate of 13.8, which as shown in Table 4.17-2, is 11.7 (Existing Conditions San Mateo County home-based VMT per resident of 13.8 x 85% = **11.7**).

**Table 4.17-2:
Project Generated VMT Thresholds Based on Existing Conditions for San Mateo County**

Item	Amount ¹
San Mateo County Home-Based VMT	
Home-Based VMT (A)	10,518,170
Resident Population (B)	764,920
Home-Based VMT per Resident (A/B=C)	13.8
Home-Based VMT per Resident Threshold (C*85%=H)	11.7
Source: Fehr & Peers, 2022. Notes: 1. Rounded resident population and VMT to nearest 10.	

Therefore, the Project would cause a significant project-generated VMT impact if the citywide home-based VMT per resident under Cumulative (2040) with Project Conditions is greater than **11.7**.

Project’s Effect on VMT (Using Boundary VMT). The Project would result in a significant impact on VMT under Cumulative (2040) Conditions if growth in the Planning Area increases total citywide boundary VMT per service population compared to Cumulative (2040) without Project Conditions. The impact threshold for the Project’s effect on VMT is the Redwood City boundary VMT per service population, or 10.3 (refer to Table 4.17-3 for how the number is calculated). The boundary VMT uses the Redwood City boundary to evaluate the Project’s effects on VMT because the Project effects are likely to be localized near Redwood City. Therefore, the Project would result in a significant impact on VMT if the Project causes the cumulative citywide daily boundary VMT per service population to be greater than **10.3** miles.



Source: Fehr & Peers, 2022

- Redwood City Limits
- Schools
- Sphere of Influence
- Railroad
- Parks
- Existing Bicycle Routes
- Class I: Bike Paths/Trails Path
- Class II: Bike Lanes
- Class III: Bike Routes
- Class IV: Cycle Tracks

**Figure 4.17-5:
Existing Bicycle Network**

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**Table 4.17-3:
Project’s Effect on VMT (Using Boundary VMT) Threshold Based on Cumulative (2040)
without Project Conditions for Redwood City**

Item	Amount ¹
Redwood City ²	
Boundary VMT (A)	2,398,880
Service Population (B) ³	233,590
Boundary VMT per Service Population (A/B=C)	10.3
Boundary VMT per Service Population Threshold (C)	10.3
SOURCE: Fehr & Peers, 2022.	
Notes:	
1. Rounded resident population, employee population, service population and VMT to nearest 10.	
2. Includes city boundary and sphere-of-influence.	
3. Service population is defined as the sum of all employees and residents.	

Safety and Hazard Impact (CEQA Threshold “c”)

The Project would result in a significant impact if it substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Applicable design standards for this Project are included in *RWCmoves* (July 2018), *Citywide Bicycle & Pedestrian Master Plan and Vision Zero Action Plan (RWC Walk Bike Thrive)* (June 2022), and the *Street Design Criteria* included in the City’s 2019 Engineering Standards, all of which include design specifications to ensure safe and efficient travel of vehicles, bicycles, pedestrians, and transit vehicles. Safety impacts may occur due to changes in the physical or operational conditions of the transportation network. Physical impacts may be related to changes in the land use context along a roadway such that the volume, mix, or speed of traffic was not anticipated as part of the original multimodal transportation network design.

Emergency Access Impact (CEQA Threshold “d”)

An emergency access impact is considered significant if implementation of the Project would provide inadequate access to accommodate emergency vehicles. Specifically, assessment should determine if a project has the potential to impact emergency vehicle access by creating conditions that would substantially affect the ability of drivers to yield the right-of-way to emergency vehicles or preclude the ability of emergency vehicles to access streets within the Project planning area.

Methods of Analysis

The most common method of calculating the VMT metrics is through a travel forecasting model. A travel forecasting model uses specialized software and is designed to reflect the interactions between different land use and roadway elements in a large area. The San Mateo City and County Association of Government (C/CAG) and Santa Clara Valley Transportation Authority (VTA) Bi-County transportation model (“C/CAG-VTA Model”) was used to prepare daily VMT estimates.

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C/CAG provided the most recent copies of the Year 2015 and Year 2040 C/CAG-VTA models for use in this analysis. The VTA Year 2015 and Year 2040 C/CAG-VTA models were last updated in 2020 to include centroid connectors⁴ and travel outside of the model area and are the best and most recent tools currently available.⁵ The Year 2015 C/CAG-VTA Model was used to develop VMT estimates for Baseline Conditions, and the Year 2040 C/CAG-VTA Model was used to develop VMT forecasts for Cumulative (2040) Conditions and includes projected growth to Year 2040. Roadway segment volumes were extracted from the C/CAG-VTA Model for use as inputs for the air quality, energy consumption, and greenhouse gas (GHG) analyses but are not directly referenced in this report. To understand the VMT forecasts and VMT impact analysis, this section defines important technical terms and analysis methods.

C/CAG-VTA Model Documentation

The C/CAG-VTA Model includes the regional roadways and major arterials of the nine-county Bay Area, the Association of Monterey Bay Area Governments (AMBAG) region (Santa Cruz County, Monterey County and San Benito County), and portions of the San Joaquin (Central) Valley. The model features additional transportation network detail and refined transportation analysis zones (TAZs)⁶ for San Mateo County and Santa Clara County. The C/CAG-VTA Model land use inputs are based on Association of Bay Area Governments (ABAG) 2017 land use projections (*Plan Bay Area 2040* land use projections), 2010 Census socioeconomic data (with some additional refinements in 2019), and a future regional transportation infrastructure consistent with *Plan Bay Area 2040* (July 2017).

The TAZ size influences the types of streets vehicle traffic is typically assigned to. For the C/CAG-VTA Model, an arterial or minor arterial is the lowest street level that traffic is assigned to because the TAZ structure in Redwood City has moderate detail. The C/CAG-VTA Model has a mode share model that can be used to express changes in mode share.

The C/CAG-VTA Model has four time periods to address travel during congested morning and evening peak periods and uncongested mid-day and midnight time periods. During congested times, the average trip length and speed of travel change.

Model Input Adjustments. For this VMT analysis, the baseline Year 2015 C/CAG-VTA Model land use and population inputs were updated for the entire Downtown Precision Plan (DTPP) area to reflect year 2021 development conditions. The baseline Year 2015 C/CAG-VTA Model used in

⁴ Centroids are points that identify the center of activity within a transportation analysis zone and connect that zone to the transportation network. A centroid connector is a feature of a travel model network that connects the centroid to the network and represents the local streets within a zone.

⁵ Updates to the C/CAG-VTA Model in 2020 did not include any updates to the volume assumptions and the Year 2015 C/CAG-VTA Model is reflective of the year 2015 conditions (i.e., pre-COVID-19).

⁶Transportation analysis zones, also referred to as TAZs, are small geographic areas within the VTA Model. As defined by *NCHRP Report 716, Travel Demand Forecasting: Parameters and Techniques*, TRB, 2012, “TAZ boundaries are usually major roadways, jurisdictional borders, and geographic boundaries and are defined by homogeneous land uses to the extent possible.”

this analysis is consistent with baseline Year 2015 C/CAG-VTA Model used in the analyses prepared for the DTPP GPA projects. All other model inputs were assumed to be consistent with the current Year 2015 C/CAG-VTA Model.

In addition, the Year 2040 C/CAG-VTA Model was updated to reflect only the land use growth and transportation network adjustments that are present in the DTPP GPA projects (Transit District Amendments and Plan-wide Amendments). However, as part of the DTPP GPA projects, the Year 2040 C/CAG-VTA Model was updated to include preliminary assumptions for the City's recent Regional Housing Needs Allocation (RHNA), which will be superseded by the proposed Project. In coordination with City staff, the following housing units were removed from the Year 2040 C/CAG-VTA Model to accurately represent the net changes in land use and population proposed by the Project:

- Transit District Amendments: 1,100 multi-family housing units
- Plan-wide Amendments: 830 multi-family housing units

All other model inputs were assumed to be consistent with the current Year 2040 C/CAG-VTA Model.

For the Cumulative (2040) with Project Conditions scenario, the proposed land use(s) in the Project (in this case, the proposed change in housing units within the Project planning areas) are added to the Cumulative (2040) without Project Conditions model for the relevant TAZs comprising the planning areas. The baseline Year 2015 C/CAG-VTA Model and future Year 2040 C/CAG-VTA Model input assumptions are included as Appendix F of this EIR.

Service population is the sum of the number of employees and residents within the designated geographic area. Figure 4.17-4 shows the service populations used in the VMT metrics for the Redwood City and San Mateo County for the study scenarios.

**Table 4.17-4:
Service Populations by Analysis Scenario**

Population	Existing Conditions [C]¹	Cumulative (2040) without Project Conditions [D]¹	Cumulative (2040) with Project Conditions [E]¹	Change [E-D]^{1,2}
City of Redwood City³				
Residents (A)	114,850	130,450	154,070	23,620
Employees (B)	66,200	103,140	103,140	0
Service Population (A + B)	181,050	233,590	257,210	23,620
San Mateo County				
Residents (A)	764,920	926,760	950,380	23,620
Employees (B)	373,710	492,120	492,120	0

**Table 4.17-4:
Service Populations by Analysis Scenario**

Population	Existing Conditions [C]¹	Cumulative (2040) without Project Conditions [D]¹	Cumulative (2040) with Project Conditions [E]¹	Change [E-D]^{1,2}
Service Population (A + B)	1,138,630	1,418,880	1,442,500	23,620
Source: Fehr & Peers, 2022.				
Notes:				
1. Numbers rounded to the nearest 10.				
2. Change = Cumulative (2040) with Project Conditions column – Cumulative (2040) without Project Conditions column.				
3. Includes city boundary and sphere-of-influence.				

As shown in Table 4.17-4, the proposed Project would accommodate an additional 23,620 residents over the planning year horizon.

Including Inter-regional Travel for VMT Analysis. The OPR Technical Advisory cites the importance of not truncating (i.e., ending or omitting a trip outside of the geographic boundary; truncating has the effect of shortening a trip to/from a destination.) trip lengths based on travel forecasting model or political boundaries:

Considerations for All Projects. *Lead agencies should not truncate any VMT analysis because of jurisdictional or other boundaries, for example, by failing to count the portion of a trip that falls outside the jurisdiction or by discounting the VMT from a trip that crosses a jurisdictional boundary. CEQA requires environmental analyses to reflect a “good faith effort at full disclosure.” (CEQA Statute & Guidelines, §15151.) Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so. Where those VMT effects will grow over time, analyses should consider both a project’s short-term and long-term effects on VMT. (Quote from page 6 of the Technical Advisory: On Evaluating Transportation Impacts in CEQA, December 2018.)*

The C/CAG-VTA Model extends beyond the Bay Area regional boundary to the south, into the AMBAG region (e.g., Santa Cruz County, Monterey County and San Benito County), and east into San Joaquin County. However, the travel model stops at the Bay Area regional boundary and does not include inter-regional travel to Mendocino County, Lake County, Yolo County, and Merced County, which shortens the vehicle travel to those counties. This truncation results in a lower total project-generated VMT estimate for the region and San Mateo County, and affects baseline regional or county baseline VMT values used to establish VMT thresholds.

The California statewide travel demand model (CSTDM) was used to estimate and forecast trip lengths that occur outside the VTA Model boundary. These trip lengths have been appended to

the external stations⁷ (refer to Table 4.17-5) and are reflected in the VMT estimates and forecasts contained in this analysis.

**Table 4.17-5:
External Station Adjustments at Bay Area Regional Boundary**

External Station (Connecting County)	Distance (Miles)
SR 1 – Mendocino County	9.4
US 101 – Mendocino County	48.4
SR 29 – Lake County	21.4
I-505 – Yolo County	101.2
SR 113 – Yolo County	12.9
I-80 – Yolo County	39.2
SR 12 – San Joaquin County	No adjustment made to these external station distances because the C/CAG-VTA Model area includes San Joaquin County.
SR 4 – San Joaquin County	
I-205 – San Joaquin County	
SR 152 – Merced County	162.9
SR 25 – San Benito County	No adjustment made to these external station distances because the C/CAG-VTA Model area includes San Benito County.
US 101 – San Benito County	
SR 152 – Santa Cruz County	No adjustment made to these external station distances because the C/CAG-VTA Model area includes Santa Cruz County.
SR 17 – Santa Cruz County	
SR 9 – Santa Cruz County	
SR 1 – Santa Cruz County	
Source: Fehr & Peers, 2022; California statewide travel demand model (CSTDM) used to develop the external station adjustments.	
Notes: External station adjustments rounded to nearest tenth of a mile.	

Project-Generated VMT Estimation Method

Project-generated VMT is the VMT from all vehicle trips for all trip purposes and types. Project-generated VMT per service population is the metric used to evaluate how the city VMT changes

⁷ External stations are located on the major transportation routes into and out of the VTA Model boundary. These stations are used to load traffic generated from and/or destined to locations outside of the VTA Model boundary.

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(increases or decreases) between the baseline and with Project scenario, considering both VMT increases due to land use growth and VMT changes due to changes in travel behavior. Project-generated VMT values include VMT on all streets including centroid connectors and travel outside of the VTA Model area. It is calculated by summing the “VMT from” and “VMT to” a specified area, as follows:

$$\text{Project Generated VMT} = (II + IX) + (II + XI) = 2 * II + IX + XI$$

- Internal-internal (II): The full length of all trips made entirely within the geographic area limits.
- Internal-external (IX): The full length of all trips with an origin within the geographic area and destination outside of the area.
- External-internal (XI): The full length of all trips with an origin outside of the geographic area and destination within the area.

The intra-zonal VMT and VMT between traffic analysis zones, or TAZs, that are in the study area cause some double counting, which is an expected result when summing the trip end based VMT. To ensure a VMT rate is expressed properly (i.e., that the numerator and denominator include the generators of both trip ends of the VMT), the Project-generated VMT is divided by the service population (residential population and employment population), the generator of both trip ends of the VMT. The VMT estimates are also presented on a per service population basis to account for both the effects of population and/or employment growth and the effects of changes in personal travel behavior. For example, population growth may cause an increase in VMT, while travelers changing their behavior by using different travel modes or decreasing their vehicle trip lengths (such as a higher percentage of Redwood City residents working or shopping in Redwood City) would cause decreases in VMT.

Project's Effect on VMT Estimation Method (Using Boundary VMT)

Project's effect on VMT (also referred to as “boundary VMT”) is the VMT that occurs within a selected geographic boundary (e.g., city, county, or region) by any type of vehicle. Boundary VMT captures all on-road vehicle travel on a roadway network (i.e., VMT on the centroid connectors and all other streets and freeway segments in the travel model within the physical limits of the selected geographic boundary) for any purpose and includes local trips as well as trips that pass through the area without stopping. The use of boundary VMT is a more complete evaluation of the potential effects of the proposed Project because it captures the combined effect of new VMT, shifting existing VMT to/from other jurisdictions, and/or shifts in existing traffic to alternate travel routes or modes.

An example of how a project can affect VMT is the addition of housing in a job-rich downtown. Workers in the downtown that have limited housing options must travel a greater distance between their home and work. Adding the housing in downtown will shorten many of the home-to-work trips and reduce the VMT to/from the downtown. While the new housing itself will “generate” more daily trips, in that there will be more cars coming in and out of the housing development, it will generally attract those trips away from other residential developments located farther away. If the boundary VMT in the area served by the new residential development were to

be assessed, it is likely that the total amount of driving in that area will have decreased rather than increased.

The boundary VMT (within Redwood City) per service population is used to evaluate the proposed Project's effect on VMT between the Cumulative (2040) without Project Conditions and Cumulative (2040) with Project Conditions. The boundary VMT is divided by the service population (sum of residential population and employment population) to account for the effects of population and/or employment growth and the effects of changes in personal travel behavior within the specified geographic area between scenarios.

Analysis Scenarios

The VMT analysis was conducted for a typical weekday under the following scenarios:

- Scenario 1:** *Baseline Conditions* – The most current version of the baseline Year 2015 C/CAG-VTA Model is used to determine the baseline home-based VMT per resident for the traffic analysis zones (TAZs) comprising the Project planning areas. The baseline Year 2015 C/CAG-VTA Model was updated as part of the Downtown Precise Plan (DTPP) General Plan Amendment (GPA) projects (Transit District Amendments and Plan-wide Amendments) for the entire Downtown Precise Plan (DTPP) area to reflect Year 2021 development conditions. All other model inputs were assumed to be consistent with the current baseline Year 2015 C/CAG-VTA Model assumptions.
- Scenario 2:** *Cumulative (2040) without Project Conditions* – The most current version of the Year 2040 C/CAG-VTA Model is used to determine countywide daily home-based VMT per resident and Redwood City (including sphere-of-influence) boundary daily VMT per service population. The cumulative land use information was adjusted within Redwood City to reflect the land use growth and transportation network adjustments from the DTPP General Plan Amendment (GPA) projects.⁸
- Scenario 3:** *Cumulative (2040) with Project Conditions* – Countywide daily VMT per service population and Redwood City boundary daily VMT per service population are determined using the Cumulative (2040) without Project model from Scenario 2

⁸ The DTPP GPA projects (Transit District Amendments and Plan-wide Amendments) included preliminary assumptions for the City's recent Regional Housing Needs Allocation (RHNA), which will be superseded by the proposed Project (i.e., Housing Element Update). In coordination with City staff, the following housing units were removed from the Year 2040 C/CAG-VTA Model to accurately represent the net changes in land use and population proposed by the Project:

- Transit District Amendments: 1,100 multi-family housing units
- Plan-wide Amendments: 830 multi-family housing units

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with the addition of the proposed land uses in the Redwood City Focused General Plan Update.

Transit, Roadway, Bicycle, and Pedestrian Conflict Evaluations

Impact TR-1 – Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?

Based on the City's guidelines, the Project would cause a significant transportation impact if an element of the Project conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.

A review of the proposed *2023-2031 Housing Element* (Public Review Draft February 2022) did not reveal conflicts with any adopted goals, policies, plans or programs applicable to transit, roadway, bicycle, and pedestrian facilities and services found in the following policy documents:

- Redwood City General Plan (2010),
- RWCmoves (2018),
- Citywide Bicycle & Pedestrian Master Plan and Vision Zero Action Plan (RWC Walk Bike Thrive) (June 2022),
- San Mateo Countywide Transportation Plan 2040 (2017),
- San Mateo County Comprehensive Bicycle and Pedestrian Plan (2021).

In addition, the proposed *2023-2031 Housing Element* (Public Review Draft February 2022) was designed to complement other elements, such as the Circulation Element in the latest *Redwood City General Plan* (2010) and would be accommodated by the multimodal networks proposed in *RWCmoves* (2018), *RWC Walk Bike Thrive* (June 2022), *San Mateo Countywide Transportation Plan 2040* (2017), and the *San Mateo County Comprehensive Bicycle and Pedestrian Plan* (2021). Further, the proposed *2023-2031 Housing Element* (Public Review Draft February 2022) includes goals, policies, and programs that support access to and the performance of transit, roadway, bicycle, and pedestrian facilities by locating new housing opportunities in mixed-use, walkable, bikeable, and transit-rich areas.

However, implementation of the proposed Project could lead to increases in the City's residential population, which has the potential to result in outcomes that are inconsistent with adopted goals, policies, plans or programs in Redwood City. Outcomes resulting from increases in residential population could include increased delay to transit facilities and services, caused by increased vehicle traffic and increased pedestrian and bicycle demand on roadways. Also, the potential increase in the number of people traveling on Redwood City roadways could increase the number of collisions in Redwood City, including collisions involving transit users, bicyclists, and pedestrians. Therefore, the proposed Project may conflict with goals and policies related to providing a safe and convenient transportation system for all modes of travel.

However, to address this potential conflict, Redwood City has an adopted Circulation Element in the latest *Redwood City General Plan* (2010) and developed multimodal plans and programs in

RWCmoves (2018) and *RWC Walk Bike Thrive* (June 2022) to support the buildout of the proposed Project. Further, subsequent infrastructure improvements, including any new roadway, bicycle, pedestrian, and transit improvements, and development sites proposed under the Project would be subject to review, and designed in accordance with all applicable City guidelines, standards, and specifications related to transit, roadway, bicycle, or pedestrian facilities and services found in the *Redwood City General Plan* (2010), *RWCmoves* (2018), *RWC Walk Bike Thrive* (June 2022), *San Mateo Countywide Transportation Plan 2040* (2017), and the *San Mateo County Comprehensive Bicycle and Pedestrian Plan* (2021). The City also requires the preparation of a local transportation analysis to evaluate individual projects against the goals, policies, and actions in the *General Plan* and *RWCmoves*, as well as identify any existing or planned transit, roadway, bicycle, or pedestrian facilities that may be affected by the project.

Because implementation of the proposed Project would be subject to all applicable City guidelines, standards, and specifications, the Project would not conflict with adopted goals, policies, plans or programs for transit, roadway, bicycle, or pedestrian facilities. Further, specific housing sites developed under the Project would need to be analyzed for transit, roadway, bicycle, and pedestrian conflicts as part of the individual project review. Therefore, the proposed Project would result in a ***less than significant impact*** to transit, roadway, bicycle, and pedestrian facilities.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measure

None required.

VMT Analysis

Impact TR-2 – Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3(b)?

Project Screening

In the first step of the VMT evaluation, the Project components are evaluated against the City's screening criteria. Land use projects that meet the City's screening criteria are presumed to be less-than-significant and do not require CEQA transportation analysis. While some elements of the Project would meet screening criteria (given the proximity to Transit Priority Areas and affordable housing) a full VMT analysis was conducted using the VTA-C/CAG model. The Project is proposing to increase the housing supply in the city and would likely have a relatively widespread effect on the VMT within Redwood City, and a VMT assessment is presented in this report which considers both the Project's direct impacts relative to Project-generated VMT, as well as the Project's long-term effect on VMT using boundary VMT. Under Cumulative (2040) with Project Conditions, the citywide home-based VMT per resident is used to evaluate the Project-generated VMT, while the boundary VMT in Redwood City is used to evaluate the project's effect on VMT. Each analysis is addressed separately below.

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Project Vehicle Trip Generation

Trip generation refers to the amount of travel activity associated with a change in land use at a given location. The C/CAG-VTA Model was used to estimate daily vehicle trips for the purposes of this TA. This represents a conservative approach, since the C/CAG-VTA Model uses industry standard/generic trip generation characteristics for the different land uses to estimate vehicle trips. Trip generation studies conducted as part of *RWCmoves*, show that Redwood City’s vehicle trip generation rates are typically lower than standard industry rates.

Table 4.17-6 shows the total number of average weekday daily vehicle trips generated by the entire Project planning area for the Cumulative (2040) without Project and Cumulative (2040) with Project Scenarios. As shown in Table 4.17-6, the proposed Project would generate approximately 54,600 total net new daily vehicle trips.⁹

**Table 4.17-6:
Project Average Weekday Daily Vehicle Trips**

	Cumulative (2040) without Project	Cumulative (2040) with Project	Net New Vehicle Trips
Daily Vehicle Trips ¹	682,400	737,000	54,600
Source: C/CAG-VTA Model; Fehr & Peers, 2022.			
Notes:			
1. Trip generation estimates are rounded to nearest 100.			

Project-Generated VMT

The Project-generated VMT estimate for all residential vehicle trips due to the Project with an origin or destination within the Planning Area were divided by the number of residents in the Redwood City (including sphere-of-influence) to obtain the citywide home-based VMT per resident. The results of the Project-generated VMT analysis are presented in Table 4.17-7

For the Cumulative (2040) with Project Conditions, the citywide home-based VMT per resident of 11.9 for the Project is greater than the applicable VMT threshold of 11.7 and would, therefore, be considered a **significant impact**.

⁹ For comparison purposes, trip generation rates from the industry standard Institute of Transportation Engineers (ITE) Trip Generation Manual were applied to the Focused General Plan land use types and quantities. Using ITE’s average daily rates of 4.72 trips per housing unit, the Project would generate approximately 53,227 daily vehicle trips, which is comparable to the trip generation estimates from the C/CAG-VTA Model.

**Table 4.17-7:
Project-Generated VMT**

Item	Home-Based VMT per Resident ¹
Redwood City	
Baseline Conditions	13.2
Cumulative (2040) without Project Conditions	12.0
Cumulative (2040) with Project Conditions	11.9
Impact Assessment	
Home-Based VMT per Resident Threshold (11.7) (Impact Conclusion)	11.9 (1.7 percent greater than threshold) (Significant)
Source: C/CAG-VTA Travel Model; Fehr & Peers, 2022.	
Notes:	
1. Rounded home-based VMT per resident to the nearest one-tenth.	

While the Project is estimated to have a significant VMT impact, it is important to note that the Project *reduces* the citywide home-based VMT per resident as compared to the Cumulative (2040) without Project as well as Baseline conditions.

While the VMT results indicate that the Project's VMT impact would be significant, individual residential development projects may generate VMT at a rate that is below the City's threshold. The VMT analysis for the Project is a city-wide metric and an aggregate estimate of VMT from residential development throughout the City. This includes residential development in lower VMT areas, such as the downtown that has higher-density, mixed-use development with good transit access, and higher VMT areas in low-density residential areas with less transit access in the west of the City. The Subsequent EIRs for the DTPP amendments (SCH Number 2021080554 for DTPP Transit District amendments; 2022, and SCH Number 2021090249 for the Gatekeeper DTPP amendments; 2022 but not yet released) stated that the residential VMT for the DTPP is between 8.1 and 8.2 miles and is below the City's residential VMT threshold; and therefore, the DTPP area does not have a VMT impact related to residential development. However, the remaining areas outside of downtown Redwood City that have larger VMT per resident are the ones causing the citywide VMT impact, particularly the home-based VMT per resident from development in less dense areas with lower transit accessibility.

Level of Significance Before Mitigation

Significant Impact

VMT Mitigation

Redwood City has prepared an amendment of the Redwood City General Plan to accommodate growth in housing required to meet the City's Regional Housing Needs Allocation or "RHNA", which prioritizes higher residential densities in Redwood City, provides additional opportunities

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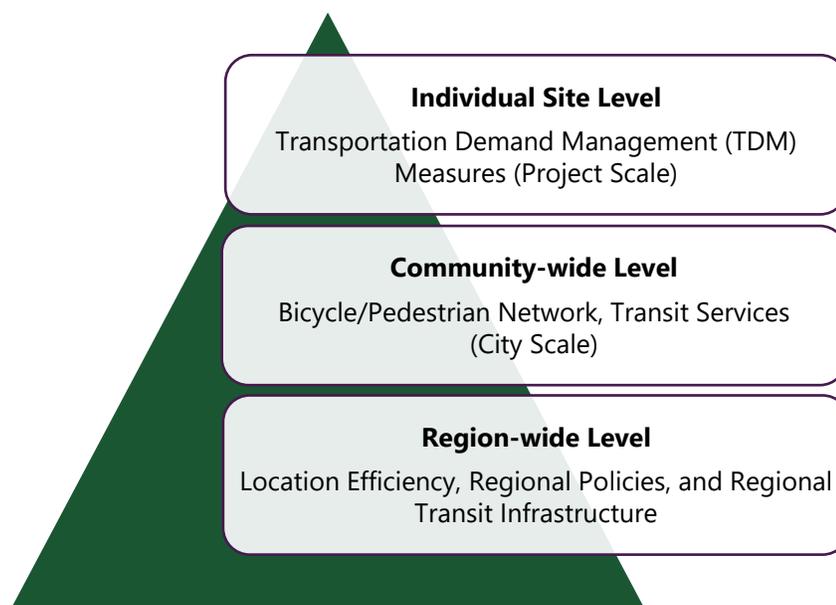
for residential development, and prioritizes development near high-quality transit. From a land use planning perspective, the City has been very proactive in promoting a land use pattern that provides convenient access to transit, places, jobs, services, and housing in close proximity, and establishes residential densities that provide for dense walkable and bikeable neighborhoods. These land use strategies represent some of the most effective strategies available to Redwood City to reduce VMT. Further, the Project is the result of an extensive outreach process among staff, policymakers, and the public to arrive at a solution that balances competing interests about accommodating housing growth and quality of life.

As shown in Table 4.17-7, a 1.7 percent reduction in citywide home-based VMT per resident would be needed to achieve the City's VMT threshold and have a less-than-significant impact. The *Redwood City General Plan* includes Goal BE-25 to “[m]aintain a local transportation system that balances the needs of bicyclists, pedestrians, and public transit with those of private cars.” Policy BE-25.1 of the *Redwood City General Plan* identifies the desired policy outcomes of a balanced transportation system in Redwood City to “[a]ccommodate and encourage alternative transportation modes to achieve Redwood City's mobility goals and reduce vehicle trip generation and vehicle miles traveled.”

A VMT mitigation's effectiveness depends on its scale (i.e., how much VMT the mitigation affects (total VMT, employment VMT, residential VMT, VMT for existing and/or new development, etc.) and its ability to reduce VMT. The most effective VMT mitigation actions come from statewide or region-wide policies that increase the cost or reduce the convenience of using vehicles. Other region-wide actions that are effective at reducing VMT include improving land use location efficiency and infrastructure investments that support transit, walking, and bicycling. While there are many VMT reduction programs that can influence VMT, individual site level VMT mitigation actions (such as TDM measures) typically have the smallest effect on VMT. This is because they are applied to new VMT generated by new buildings, while region-wide programs can apply to all buildings (existing and new) and will therefore have a larger scale of impact. However, local jurisdictions have more control over the implementation of TDM measures at the local level compared to statewide or region-wide VMT mitigation measures.

Additionally, the effectiveness of TDM measures varies substantially depending on the context in which they are applied. TDM is most effective in urban areas where urban character (land use and built environment) and land use mix are most supportive of vehicle trip reduction. TDM programs are less effective in suburban areas where the built environment and transportation network are more dispersed and where modes are typically limited to personal vehicles. Figure 4.17-7 presents a conceptual illustration of the relative importance of scale.

**Figure 4.17-7:
Transportation-Related GHG Reduction Measures**



Individual Site Level VMT Mitigation

To meet the City's desired policy outcomes and to account for the geographic variability of home-based VMT per resident, future residential development projects under the Project will be required to conduct baseline VMT screening/analysis consistent with the guidance provided in the City's TAM to determine if additional VMT analysis and/or a VMT-reducing TDM plan is required.

The TAM specifies that projects consistent with the General Plan and any applicable Specific Plans would be able to apply specific VMT screening criteria. Since the cumulative VMT analysis has already been conducted for this Project, future development projects that are consistent with the Project can apply the City's screening criteria from the TAM for their baseline VMT analysis, as follows:

- **Transit Priority Areas (TPA):** This criterion only applies to projects located within the ½ mile walkshed around major transit stops (i.e., Transit Center) or within a ¼ mile walkshed around high-quality transit corridors (i.e., El Camino Real) in Redwood City. TPA screening will only apply if the project meets the following additional criteria:
 - Floor Area Ratio (FAR) of 0.75 or more; *and*
 - Total square footage of 500,000 square feet or less; *and*
 - Proposed parking does not exceed minimum required by the Zoning Code or applicable plan; *and*
 - Project is consistent with Sustainable Communities Strategy (as determined by the lead agency, with input from MTC); *and*

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- Existing on-site affordable residential units are maintained or increased; *and*
- Less than significant levels of VMT are anticipated through project-specific or location-specific information (i.e., based on the City’s discretion a project is not anticipated to have characteristics that would result in VMT that is substantially different from similar and/or surrounding uses).
- **Affordable Housing:** This criterion applies to 100% restricted affordable residential projects in infill locations (i.e., developments within unused and underutilized lands within existing development patterns) and near transit (i.e., is within ½ mile of a transit stop).
- **Small Projects:** This criterion applies to projects defined as generating 150 or fewer average daily vehicle trips, absent substantial evidence indicating that a project would generate a potentially significant level of VMT. Each project is required to document the trip generation methodology and number of trips it would generate.

Future residential development projects that meet at least one of the screening criteria would require no further VMT analysis. Future residential projects that do not meet at least one of the screening criteria would be required to conduct a VMT analysis using the C/CAG-VTA Model or the C/CAG VMT Estimation Tool¹⁰ to determine if their home-based VMT per resident is below the City’s applicable threshold. Projects that are below the threshold would require no further VMT analysis or mitigation. Projects that exceed the City’s home-based VMT per resident threshold would be required to develop a TDM plan consistent with City’s TDM Ordinance (Chapter 48 of the Redwood City Municipal Code)¹¹ and demonstrate that the proposed TDM plan reduced the project’s VMT below the City’s threshold. The City’s current TDM Ordinance focuses on achieving mode share goals and not VMT targets. To demonstrate the effectiveness of a project’s TDM plan to reduce VMT, the TDM plan for projects that do not meet the screening criteria and exceed the City’s home-based residential VMT threshold shall quantify the VMT effectiveness of the TDM plan by including data and reduction calculations from the latest California Air Pollution Control Offices Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (December 2021). Quantifying the CAPCOA reductions could be achieved through manual application of the *CAPCOA Handbook* or the C/CAG VMT Estimation Tool once the Tool has been updated to reflect the most current version of CAPCOA (the current VMT reductions in the C/CAG VMT Estimation Tool are based on the 2018 CAPCOA). Not all residential projects will be able to fully

¹⁰ Source: https://apps.fehrandpeers.com/CCAG_VMT_Estimation_Tool/

¹¹ The City’s current TDM Ordinance requires all new development in the City that meet specified development thresholds (generally 25 or more housing units and/or 10,000 square feet or more commercial development, including office developments) to develop a TDM plan and achieve specific mode share targets regardless of VMT impact. Applicable mode share targets for residential sites are no more than 33 percent of trips being drive-alone trips (i.e., single-occupancy vehicle or “SOV trips”) in the downtown area and no more than 44 percent of trips being drive-alone for sites outside of the downtown. The TDM Ordinance requires individual projects to annually monitor their site for compliance and includes financial penalties for projects that fail to meet specified drive-alone targets.

reduce their VMT impact; though each project will be required to demonstrate that they are making a good faith effort toward maximizing their VMT reductions; See Mitigation Measure TR-1, below.

Community-wide or Region-wide TDM Measures

Additionally, the City could consider creating and adopting a community-wide multimodal transportation impact fee (TIF) program to provide funding for mostly VMT reduction projects, such as bicycle and pedestrian improvements and localized vehicle operation improvements (e.g., local intersection modifications) identified in the *Redwood City General Plan (2010)*, *RWCmoves*, and *RWC Walk Bike Thrive*. Development of a community-wide multimodal TIF program takes time to develop and implement and the City does not have a specified timeline for a community-wide multimodal TIF program. A community-wide multimodal TIF program could be complemented by a regional VMT mitigation program (e.g., VMT cap, VMT-based impact fee program, VMT mitigation bank, VMT mitigation exchange). However, no regional VMT mitigation programs currently exist in San Mateo County. In the second half of 2022 C/CAG is anticipated to start evaluating different VMT mitigation program frameworks which may lead to a countywide or sub-regional VMT mitigation program. However, since the City has no specified timeline for a community-wide multimodal TIF program and the City has no control of C/CAG's process and outcome of a regional VMT mitigation program outside its jurisdiction, it is not considered to be reasonable or feasible mitigation for the Project. However, the City should create a community-wide multimodal transportation impact fee program in the future and/or support and work cooperatively with C/CAG to implement a countywide or sub-regional VMT mitigation program. Future residential projects would be required to pay the applicable community-wide, countywide, or sub-regional VMT fees, when those have been established.

Mitigation Measures

- **Mitigation Measure TR-1.** All future residential development projects that do not meet the City's VMT screening criteria and exceed the City's home-based residential VMT threshold shall be required to develop a TDM Plan and quantify the VMT effectiveness of the plan by including data and reduction calculations from the latest *CAPCOA Handbook*. Not all residential projects will be able to fully reduce their VMT impact because of its land use context (i.e., low-density suburban area, low transit access, etc.). However, each project will be required to demonstrate that they are making a good faith effort toward maximizing their TDM plan and associated VMT reductions. Since, the City cannot demonstrate that the VMT from each future residential development project would be reduced to the degree that is needed to eliminate the VMT impact, the home-based VMT per resident impact would be considered ***significant and unavoidable with Mitigation TR-1.***
- **Mitigation Measure TR-2.** The City should create a community-wide multimodal transportation impact fee program in the future and/or support and work cooperatively with C/CAG to implement a countywide or sub-regional VMT mitigation program. Future residential projects would be required to pay the applicable community-wide, countywide, and/or sub-regional VMT fees, once those have been established. Since the City has no specified timeline for a community-wide multimodal transportation impact fee program and the City has no control of C/CAG's process and outcome of a regional VMT mitigation program outside its jurisdiction the home-based VMT per resident impact would be considered ***significant and unavoidable with Mitigation TR-2.***

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Level of Significant After Mitigation

Significant and Unavoidable

Project’s Effect On VMT (Using Boundary VMT)

To evaluate the Project’s effect on VMT between the Cumulative (2040) and Cumulative (2040) with Project Conditions, the boundary VMT is divided by the service population (sum of residential population, and employment population). The growth in boundary VMT captures the combined effect of the following factors:

- Shifts in existing VMT due to land use and transportation network changes in Redwood City
- Shifts in existing traffic to alternate travel routes or modes, and
- New VMT from additional land use development in Redwood City.

The analysis results of the Project’s effect on VMT under Cumulative (2040) and Cumulative (2040) with Project Conditions are presented in Table 4.17-8.

Under Cumulative (2040) with Project Conditions, the Redwood City boundary VMT per service population of 9.6 does not exceed the applicable VMT threshold of 10.3. Therefore, the impact of the Project’s effect on VMT under Cumulative (2040) with Project Conditions would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measure

None required.

**Table 4.17-8:
Project’s Effect on VMT (Using Boundary VMT) for VMT Assessment**

Item	Cumulative (2040) without Project Conditions¹	Cumulative (2040) with Project Conditions¹
Redwood City		
Boundary VMT (A)	2,398,880	2,470,280
Service Population (B) ²	233,590	257,210
Boundary VMT per Service Population (A/B=C)	10.3	9.6

**Table 4.17-8:
Project’s Effect on VMT (Using Boundary VMT) for VMT Assessment**

Item	Cumulative (2040) without Project Conditions ¹	Cumulative (2040) with Project Conditions ¹
Impact Assessment		
Boundary VMT per Service Population Threshold (10.3) (Impact Conclusion)		9.6 (Less Than Significant)
Source: C/CAG-VTA Model; Fehr & Peers, 2022		
Notes: 1. Rounded service population and VMT to nearest 10. Rounded boundary VMT per service population to the nearest one-tenth. 2. Service population is defined as the sum of all employees and residents. Refer to Table 4.17-4 for breakdown of employees and residents.		

Safety and Hazard Impacts

Impact TR-3 – Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed Project would have a significant impact relative to hazards if it would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Applicable design standards for this Project are included in *RWCmoves* (July 2018), *Citywide Bicycle & Pedestrian Master Plan and Vision Zero Action Plan (RWC Walk Bike Thrive)* (June 2022), and the *Street Design Criteria* included in the City’s 2019 Engineering Standards, all of which include design specifications to ensure safe and efficient travel of vehicles, bicycles, pedestrians, and transit vehicles. Safety impacts may occur due to changes in the physical or operational conditions of the transportation network. Physical impacts may be related to changes in the land use context along a roadway such that the volume, mix, or speed of traffic was not anticipated as part of the original multimodal transportation network design.

The proposed Project does not include modifications to the design of local streets or intersections; however, subsequent infrastructure improvements under the Project, including any new roadway, bicycle, pedestrian, and transit improvements, would be subject to, and designed in accordance with City standards and specifications which address potential design hazards including sight distance, driveway placement, and signage and striping. Additionally, any new transportation facilities, or improvements to such facilities associated with subsequent infrastructure improvements would be constructed based on industry design standards and best practices consistent with the City’s zoning code and building design and inspection requirements. The City’s evaluation of projects’ access and circulation will incorporate analysis with respect to City standards for vehicular level of service and queueing, as well as for service to pedestrians, bicyclists, and transit users. Therefore, the Project would result in a ***less than significant impact*** to transportation hazards.

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Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measure

None required.

Emergency Access Impacts

Impact TR-4 – Would the Project result in inadequate emergency vehicle access?

For this analysis, a significant impact would occur if the proposed Project or an element of the Project would result in inadequate emergency access. There are no specific development projects associated with the Project; thus, specific housing sites developed under the Project cannot be analyzed for adequacy of emergency access at this time. However, since the City maintains the roadway network, emergency access to new development sites proposed under the Project would be subject to review by Redwood City (in accordance with industry design standards, including the City of Redwood City's 2019 Engineering Standards as well as relevant sections from *RWCmoves* (2017)) and responsible emergency service agencies, 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 which 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***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measure

None required.

4.17.6 References

Association of Environmental Professionals. California Environmental Quality Act Statute & Guidelines, 2022. https://www.califaep.org/docs/2022_CEQA_Statute_and_Guidelines.pdf.

California Air Pollution Control Officers Association (CAPCOA). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing

- Health and Equity, December 2021. https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf.
- City of Redwood City. Engineering Standards, 2019. <https://www.redwoodcity.org/departments/community-development-department/engineering-transportation/engineering/engineering-standards>. [Accessed August 2022].
- _____. Redwood City General Plan, October 11, 2010. <https://www.redwoodcity.org/departments/community-development-department/planning-housing/planning-services/general-plan-precise-plans/general-plan>.
- _____. Redwood City Transportation Analysis Manual, July 21, 2020. <https://www.redwoodcity.org/home/showpublisheddocument/22106/637311118467370000>.
- _____. Redwood City Transportation Demand Management TDM Program, July 13, 2018. http://rwcmoves.com/wp-content/uploads/2018/07/RWCmoves_AppendixE_TDM-Plan_20180710_3.pdf.
- _____. RWC Walk Bike Thrive, June 2022. https://www.rwcwalkbikethrive.org/files/ugd/06d7f0_d8e5440df8bc485da7bf731455da39bb.pdf.
- _____. RWCmoves, July 2018. http://rwcmoves.com/wp-content/uploads/2018/07/RWCmoves-Transportation-Plan_July16.pdf.
- _____. Transportation Demand Management, Chapter 48 of City Ordinance. [Accessed August 2022].
- City/County Association of Governments of San Mateo County. San Mateo County Comprehensive Bicycle and Pedestrian Plan, 2021. https://ccag.ca.gov/wp-content/uploads/2021/05/6_A1_San-Mateo-County-Comprehensive-Bicycle-and-Pedestrian-Plan-Update-Final-Plan.pdf.
- _____. San Mateo Countywide Transportation Plan 2040, February 9, 2017. <https://ccag.ca.gov/programs/countywide-transportation-plan/>.
- Metropolitan Transportation Commission and Association of Bay Area Governments. Plan Bay Area 2040, July 26, 2017. http://2040.planbayarea.org/files/2020-02/Final_Plan_Bay_Area_2040.pdf.
- _____. Plan Bay Area 2040. Projections 2040. <http://projections.planbayarea.org/>. [Accessed August 2022].
- _____. Plan Bay Area 2050, October 21, 2021. https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf.

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National Cooperative Highway Research Program (NCHRP). Report 716. Travel Demand Forecasting: Parameters and Techniques, 2012.
<https://www.trb.org/Publications/Blurbs/167055.aspx>.

State of California Governor’s Office of Planning and Research (OPR). Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.
https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

4.18 Tribal Cultural Resources

This section describes the existing conditions for Tribal Cultural Resources (TCRs) in the Planning Area, describes the associated regulatory requirements, and evaluates the potential impacts to TCRs resulting from implementation of the Project.

On July 1, 2015, Assembly Bill (AB) 52 went into effect amending CEQA to include TCRs as a new class of resources and to include new requirements relating to Native American consultation. A TCR, in general, is similar to the federally defined Traditional Cultural Properties. However, AB 52 incorporates consideration of local and state significance and requires mitigation under CEQA. TCRs may include resources that are listed in or eligible for listing in the California Register of Historical Resources, such as archaeological sites, districts, or landscapes, or other kinds of resources that the CEQA lead agency chooses to treat as a TCR through tribal consultation.

4.18.1 Environmental Setting

Generally, TCRs are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources as defined in Public Resources Code Section 5024.1(k). TCRs are also resources determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the criteria established in Public Resources Code Section 5024.1(c), which are the criteria used to determine whether a resource may be listed as historical in the California Register of Historical Places.

Prior to European explorers settling the Planning Area, the indigenous people known as the Ohlone, known throughout California as Costanoans, or “coastal people,” lived in the region for thousands of years (City of Redwood City 2010). The Ohlone lived along the bay shores, foothills, and hills of the Peninsula, subsisting off the plentiful food resources, particularly those available from the bay. An estimated 7,000 indigenous people were living in this community when Spanish explorers first arrived in the last half of the 18th century. As a semi-nomadic people, their culture is evidenced by shell mounds left in areas of temporary occupancy. One such mound was located at Main Street near Woodside Road and another near the Union Cemetery. These two shell mounds have since been leveled and built upon. It is almost certain the Planning Area would have been utilized heavily by the indigenous people living in this area for thousands of years. The Planning Area likely contains archaeological resources that pre-date Spanish and Mexican land grants, dating back thousands of years and reflecting Native American settlement patterns. Given the long history of Native American settlement in the region, there is a moderate to high probability of finding archaeological resources, including tribal cultural resources, in the Planning Area.

4.18.2 Regulatory Framework

Federal

National Historic Preservation Act of 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) (16 U.S.C §§ 470 et seq.) 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 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.

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 (36 Code of Federal Regulations [CFR] Part 800) on such undertakings. The Section 106 process also give Federally recognized Native American Tribes the chance to consult and comment on the project before it can be finalized.

Native American Graves Protection and Repatriation Act 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, 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

State

Native American Heritage Commission, Public Resources Code Sections 5097.9–5097.991

Section 5097.91 of the Public Resources Code (PRC) established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a state policy of noninterference with the free expression or exercise of Native American religion was articulated,

along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection Act (NAGPRA) is consistent with the federal NAGPRA. Intended to “provide a seamless and consistent state policy to ensure that all California Indian human remains, and cultural items be treated with dignity and respect,” the California NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The act also provides a process for non–federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Assembly Bill 52

Assembly Bill (AB) 52 was signed into law by Governor Jerry Brown on September 25, 2014. AB 52 amended California Public Resources Code (PRC), Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that TCRs must be considered under CEQA and required additional Native American consultation in certain circumstances. Specifically, AB 52 requires the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1(a)(9) of AB 52 establishes that “a substantial adverse change to a tribal cultural resource has a significant effect on the environment.” Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3(a)).

Senate Bill (SB) 18

California Government Code, Section 65352.3 incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB 18 requires public notice to be sent to

tribes listed on the Native American Heritage Commission’s SB 18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that may be affected by the proposed adoption or amendment to a general or specific plan. The City received no comments from tribes notified regarding the Project.¹ The City received a letter from the NAHC in response to the updated NOP, explaining the State’s tribal consultation requirements and NAHC’s recommendations for the assessment of tribal cultural resources.²

Local

Redwood City General Plan

The Built Environment Element of the City’s existing General Plan specifies the following goals, policies, and implementation programs for the community’s historic buildings and features:

Goal BE-37: Protect, preserve, restore, rehabilitate, and/or enhance historic resources.

Policy BE-37.1: Protect historic resources throughout the City.

Goal BE-38 Establish robust programs and activities that educate the public about the history and historic resources of Redwood City.

Policy BE-38.1: Encourage public knowledge, understanding, and appreciation of Redwood City’s role in local and regional history.

Policy BE-38.2: Foster civic and neighborhood pride and a sense of identity based on the recognition and use of historic and cultural resources.

Policy BE-38.4: Support and consult with private associations, groups, non-profit organizations, corporations, school districts, and public agencies with an interest in historic preservation of significant historic resources.

Policy BE-38.5: Continue to offer educational benefits on local history through the National Trust Historic Preservation Month activities.

¹Apollo Rojas, Senior Planner, City of Redwood City Community Development and Transportation Department, email dated July 21, 2022, to MIG, Inc.

²Cody Campagne, Cultural Resources Analyst, Native American Heritage Commission, letter dated October 24, 2022, to Apollo Rojas, City of Redwood City.

Historic Resources Advisory Committee

The City Council established the Historic Resources Advisory Committee (HRAC) in 1980. In 1992, the HRAC attained National Park Service Certified Local Government (CLG) status, a program administered by the California OHP. The HRAC actively pursues historic preservation projects in the City, such as overseeing management of the City's Historic Resources Inventory, which is based on surveys initially conducted in 1976 and updated in 1996. The inventory has since been updated using the Department of Parks and Recreation forms (DPR 523 form series). The HRAC also developed and oversees implementation of a Cultural Resources Management Plan that outlines the City's policies for the treatment of historic resources impacted by development projects in the City. The Cultural Resources Management Plan is applied to all historic sites which have a potential for the on-site discovery, reconnaissance, and identification of a cultural resource.

4.18.3 Significance Thresholds

As identified in CEQA Guidelines Appendix G, the Project could result in a significant impact if it causes 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, 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:

- A. 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
- B. 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. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.18.4 Proposed Policies and Programs to Avoid or Reduce Significant Impacts

There are no relevant proposed policies or programs in the amended elements that would avoid or reduce significant Tribal Cultural Resource impacts.

4.18.5 Impacts and Mitigation Measures

Resource Impacts

Impact TRC-1: Would the Project 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, 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:

4.18 – Tribal Cultural Resources

- A. 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
- B. 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. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As described above in the Environmental Setting (Section 4.18.1), there is a moderate to high likelihood that unrecorded Native American cultural resources exist in portions of the Planning Area, as several reported cultural resource sites understood to be associated with Native Americans have been found within the Planning Area and surrounding areas, including near the San Francisco Bay, on inland ridges, midslope benches, and in valleys near waterways.

Ground-disturbing activities associated with implementation of the Project could result in damage to or destruction of Tribal Cultural Resources as defined in Public Resources Code section 5020.1(k). Archaeological materials associated with past occupation within the City are known to exist and have the potential to provide important cultural and scientific information.

Implementation of the Project would result in new construction of residential housing and mixed-use development, which could disturb soils at depths not previously disturbed by existing or past development. Additionally, inventory sites identified in the Housing Element Update have not been formally surveyed for TCRs or archaeological resources associated with TCRs that could be lost or damaged during project construction. Failure to properly evaluate, assess, survey, and if necessary, monitor proposed development sites could result in impacts to TCRs.

The potential for uncovering significant tribal cultural resources within the Planning Area during earthmoving construction activities is unknown. Nevertheless, ground-disturbing activities associated with proposed development projects within the Planning Area, where excavation depths exceed those previously attained or in un-surveyed parcels, have the potential to damage or destroy TCRs or archaeological resources associated with TCRs that may be present on the surface or below the ground. These historic resources include those associated with archaeological findings, including tribal cultural resources. In addition, development associated with Project implementation would comply with existing laws and regulations, including AB 52 and SB 18, to ensure there would be no substantial adverse changes to tribal cultural resources.

To confirm that potential impacts to historic resources are reduced, individual development projects would need to conform to certain standard construction practices and policies. Mitigation Measures TCR-1a and TCR-1b would reduce potential impacts to undiscovered archaeological and would be applicable to all future development proposed under the Project. Mitigation Measures TCR-2a, TCR-2b, and TCR-3 would reduce potential impacts to undiscovered human remains and would be applicable to all future development proposed under the Project.

Level of Significance Before Mitigation

Potentially Significant Impact

Mitigation Measures

Mitigation Measure TCR-1a: For future development of individual projects within the Planning Area, each applicant shall implement the following requirements: if deposits of prehistoric or historic archaeological and tribal cultural resource materials are encountered during project construction activities, all work within an appropriate buffer area around the discovery shall be stopped and a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the deposit(s) and make recommendations to the City Community Development and Transportation Department regarding their treatment, consistent with CEQA Guidelines Section 15126.4 (b)(3).

If deposits of prehistoric or historic archaeological and tribal cultural resource materials cannot be avoided by project activities, the City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist to evaluate the potential cultural significance of the resource(s). If the deposits are deemed to be non-significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the qualified archaeologist, in coordination with the City Community Development and Transportation Department and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan.

The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological and tribal cultural resource materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological and tribal cultural resource is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological and tribal cultural context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.

The City Community Development and Transportation Department shall confirm that the project applicant(s) has retained a qualified archaeologist for the preparation and implementation of the data recovery plan, which shall be conducted by prior to any additional earth-moving activities in the area of the resource. The recovery plan shall be submitted to the project applicant, the City Community Development and Transportation Department, and the Northwest Information Center (NWIC) of the California Historical Resources Information System. Once the recovery plan is reviewed and approved by the City Community Development and Transportation Department and any appropriate resource recovery completed, project construction activity within the area of the find may resume. A data recovery plan shall not be required for resources that have been deemed by the NWIC as adequately recorded and recovered by studies already completed.

Mitigation Measure TCR-1b: Prior to the issuance of grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo adequate training for the identification of federal or state-eligible cultural resources, and that the

construction crews are aware of the potential for previously undiscovered archaeological and tribal cultural resources within the specific project site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. To the extent that individual development projects may be found to have the potential to disturb or destroy archaeological and/or tribal cultural resources, subsequent environmental documentation would be required, including mitigation measures to address any identified significant impacts.

Mitigation Measure TCR-2a: For future development of individual projects within the Planning Area, if human remains are encountered during ground-disturbing activities within specific project sites, the project contractor and/or on-site supervisor shall provide certification to the City Community Development and Transportation Department that work within 50 feet of the discovery is stopped. The project contractor shall immediately notify the San Mateo County Coroner (Coroner) upon the discovery of any human remains. At the same time, a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted by the project applicant(s) and project contractor, in coordination with the City Community Development and Transportation Department to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner shall notify the NAHC within 24 hours of this identification. The NAHC will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment or disposition, with proper dignity, of the remains and any associated grave goods. Upon completion of the assessment, the qualified archaeologist shall prepare a report documenting the background to the finds, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City Community Development and Transportation Department, and the NWIC. Once the report is reviewed and approved by the City Community Development and Transportation Department, and any appropriate treatment completed, project construction activity within the area of the find may resume. If the MLD does not make recommendations within 48 hours the project applicant(s) shall reinter the remains in an area of the property secure from further disturbance. If the project applicant(s) does not accept the MLD's recommendations, the applicant(s) or the MLD may request mediation by the NAHC.

Mitigation Measure TCR-2b: Prior to the issuance of individual grading permits for future development within the Planning Area, the City Community Development and Transportation Department shall confirm that any development applicant has required all construction crews to undergo a training session to inform them of the presence and nature of federal or state-eligible cultural resources and the potential for previously undiscovered archaeological and/or tribal cultural resources and human remains within specific project sites, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.

Mitigation Measure TCR-3: Future development project applicants must comply with the City's Historic Resources Management Plan. Such projects shall prepare a cultural resources plan in compliance with the applicable California Environmental Quality Act regulations for all historic site or sites which have a potential for the on-site discovery, reconnaissance and identification of cultural resources. The cultural resources plan must include the following:

1. A records search conducted by the Northwest Information Center of the California Archaeological Inventory.

2. Interview of persons knowledgeable about the history of the site; as approved by staff and within a time period designated by staff; and
3. A review of maps archived at the local history room of the Main Library and other historical data contained in the Redwood City Inventory. (Responsibility: The Developer).”

With implementation of Mitigation Measures TCR-1a, TCR-1b, TCR-2a, TCR-2b, and TCR-3, and the City’s established development review and Native American consultation processes consistent with state law, potential impacts to tribal cultural resources resulting from implementation of the Project would be less than significant.

Level of Significance After Mitigation

Less than Significant.

4.18.6 *References*

City of Redwood City. 2010. *A New General Plan for Redwood City, Environmental Impact Report*, 2010.

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4.19 Utilities and Service Systems

This EIR chapter describes existing utilities and service systems within the Planning Area, analyzes potential impacts associated with implementation of the Project, and identifies mitigation measures, if required.

4.19.1 *Environmental Setting*

Water Service

Redwood City serves water to customers within the incorporated limits of the City, as well as portions of unincorporated San Mateo County (City of Redwood City 2021). Redwood City delivers water to residential, commercial, industrial, and governmental customers and purchases all of its potable water supplies from the San Francisco Public Utilities Commission (SFPUC). Additionally, the City serves recycled water to its customers via its recycled water program. As of 2020, the City serves 23,974 connections within its service area.

Purchased or Imported Water

Redwood City's potable municipal water supply is provided by the Hetch Hetchy regional water system operated by SFPUC (City of Redwood City 2021). Approximately 85 percent of the water supply to the SFPUC Regional Water System (RWS) originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project. The remaining 15 percent of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds and is stored in six different reservoirs in Alameda and San Mateo Counties. The City's Individual Supply Guarantee (ISG) is 10.93 million gallons per day (MGD), or approximately 12,243 acre-feet per year (AFY). Between 2016 and 2020, the City purchased between 67 percent and 80 percent of its ISG.

Groundwater

To date, the City has not utilized groundwater as a potable water source; as described above, the sole source of the City's potable water has been wholesale water supplied by the SFPUC RWS (City of Redwood City 2021). The City is in the early phase of evaluating groundwater as a future emergency and back-up supply.

Recycled Water

Recycling water involves treating wastewater to an acceptable level such that it can be reused for irrigation, cooling, and other non-potable applications. Because recycled water is treated wastewater, its availability is closely linked to the location and treatment capability of the wastewater treatment plant that receives and treats wastewater from a water supplier's service area.

4.19 – Utilities and Service Systems

Since 2000, the SVCW (formerly the South Bayside System Authority (SBSA)) has produced tertiary-treated, unrestricted use recycled water under Title 22 for reuse in Redwood City (City of Redwood City 2021). The recycled water is delivered into City-owned and operated storage tanks (located at the SVCW Wastewater Treatment Plant (WWTP)) for use in the City's recycled water system. The volume of recycled water used within the City's service area was 856 acre-feet (AF) in 2020.

To accommodate future housing, employment, and population growth within the City, the City initiated a water recycling program and an aggressive water conservation program to reduce water demands and to meet both current and future water needs.

The Redwood City recycled water project has a design capacity of up to 3,238 AFY of average annual demand and includes the option to export recycled water to neighboring communities. The City's recycled water project is being implemented in two phases. Phase I of the project included the design and construction of facilities to serve customers east of Highway 101 in Redwood Shores and the Greater Bayfront Area. Phase II of the project is underway and will expand the recycled water service area west of Highway 101 to downtown Redwood City.

As of 2021, Phase II-A of the recycled water system has been completed and extended the City's service along Walnut Street from Highway 101 to Marshall Street. Also, as part of Phase II, the recycled water system was extended along East Bayshore Road from Seaport Avenue to Douglas Avenue crossing under Highway 101, and along Broadway to the Stanford in Redwood City project, a development project located at 425 Broadway. Expansion of the recycled water system is in progress with two major recycled water pipeline extensions for the Broadway Plaza and South Main Mixed-Use projects. The facilities installed to date were constructed to supply the initial phases of the recycled water project, up to 2,000 AFY, while providing the flexibility to deliver up to 3,238 AFY in the future.

Construction of a new recycled water pipeline servicing the Broadway Plaza Project (1401 Broadway) began in 2021; and construction of a new extension in coordination of the South Main Mixed-Use Project is planned for the near future. Both of these projects will include irrigation, commercial, and residential recycled water uses. The City is also including an expansion of the recycled water system to the Downtown Area in its 5-year CIP. The first phase of this project will extend the pipeline from Marshall Street to Jefferson Ave, and then north on Jefferson to Bradford Street, and south on Jefferson to approximately 837 Jefferson Ave. Furthermore, the City is working with potable irrigation customers along existing recycled water pipelines to retrofit their irrigation systems for recycled water use

The recycled water program is administered through the City's Public Works Services (PWS) Department. The PWS Department is responsible for operation and maintenance of the distribution facilities, retrofit process, permitting, monitoring, reporting, and overall program coordination.

Wastewater Collection and Treatment

Wastewater treatment for Redwood City is provided by the Silicon Valley Clean Water Authority (SVCW) (City of Redwood City 2021).

Redwood City owns, operates, and maintains a wastewater collection system comprised of 194 miles of sewer mains and 31 sewer lift stations that serve both residential and commercial customers. Wastewater flow from the City is conveyed from the Redwood City pump station (located at 1585 Maple Street) through the SVCW facilities to SVCW's sub-regional wastewater treatment plant. The plant is located at the eastern end of the Redwood Shores peninsula in Redwood City. Wastewater collected in the Redwood Shores area does not enter the SVCW-operated conveyance system and is conveyed separately to the plant through City-operated facilities.

The SVCW wastewater treatment plant is jointly owned and operated by the Cities of Redwood City, Belmont, and San Carlos and the West Bay Sanitary District as a Joint Powers Authority (JPA). Terms of the JPA entitle each member agency to a portion of ownership of SVCW. Redwood City's capital and reserve allocation factor totals approximately 49 percent, which is the largest of the four members.

The SVCW treatment plant has a permitted operating capacity of 29 MGD average dry weather flow (ADWF) and a design capacity of 71 MGD peak wet weather flow (PWWF). Pursuant to the JPA, Redwood City has maximum capacity rights of 11.4 ADWF and 30.5 PWWF.

The treatment process at the SVCW treatment plant involves the following: primary sedimentation, dual secondary treatment with fixed film reactors and activated sludge, filtration, disinfection using sodium hypochlorite, and dechlorination with sodium bisulfide. Discharge of the advanced secondarily-treated effluent to the San Francisco Bay is permitted by the San Francisco Regional Water Quality Control Board (RWQCB). The volume of wastewater collected from the City's service area in 2020 was approximately 7,971 AFY.

Storm Drain System

The Redwood City Public Works Services Department maintains, operates, and repairs Redwood City's stormwater system (City of Redwood City 2010). The stormwater system is comprised of 20 pump stations; 2,685 storm drain catch basins, inlets, and siphons; more than 100 miles of storm drain pipe; 82 open culverts; more than 10 miles of creeks, drain ditches, and canals; and 150 acres of storm retention basins in Redwood Shores. The stormwater drainage system is highly regulated as the stormwater eventually flows into the San Francisco Bay. The pump stations, catch basins, inlets, and creeks are cleaned and maintained on an annual basis before October 15 (typically the beginning of the rainy season, which extends to April 15).

The Bayfront Canal serves as a major stormwater runoff collection and discharge feature. As the Bayfront Canal collects and discharges stormwater runoff from the City and neighboring communities, the current capacity of the Bayfront Canal is inadequate to handle the stormwater from of the drainage area it serves. Drainage from the Atherton Channel (Marsh Creek) is the largest contributor of stormwater runoff to the Bayfront Canal.

The sub-drainage basin at 5th Avenue and Hoover Street within the Friendly Acres neighborhood, one of the smallest sub-basins, lies at the lowest point in the entire drainage area of the Bayfront Canal. During heavy rains, the lack of capacity and topography contribute to stormwater backing up onto properties and streets in the canal basin, including areas south/west of U.S. 101. U.S. 101 acts as a barrier in keeping stormwater flows from reaching the San Francisco Bay.

Solid Waste and Recycling Services

According to CalRecycle, the City of Redwood City as a whole generated approximately 81,390 tons of solid waste in 2019 (CalRecycle 2022a). Recology San Mateo County provides solid waste collection, recycling, transportation, and disposal services to Planning Area customers under a franchise agreement. Collected waste is transported to the South Bayside Transfer Station (SBTS), located in the City of San Carlos. Approximately 90 percent of the solid waste collected from Redwood City is sent to the Ox Mountain Sanitary Landfill, located east of Half Moon Bay in unincorporated San Mateo County. In 2019, approximately 61,721 tons of solid waste from Redwood City was disposed of at this landfill (CalRecycle 2022b). According to CalRecycle, the Ox Mountain Landfill is estimated to have a remaining capacity of at least 22,180,000 cubic yards (CalRecycle 2022c). This landfill is currently permitted to operate through January 2034. The other 10 percent of Redwood City’s solid waste is diverted to numerous landfills in the Bay Area and elsewhere in the State of California.

Recyclable materials brought to the SBTS are transferred to the BFI Recyclery, located adjacent to the SBTS. Recyclable materials are picked up bi-weekly from residential and commercial properties and then brought to the transfer station to be sorted. Plastic, glass, tin, paper, newspaper, and aluminum are all accepted as recyclables.

Energy Service

Pacific Gas & Electric Company (PG&E) provide electrical and natural gas services to the Planning Area (City of Redwood City 2010).

Telecommunications Service

Telecommunication services are provided by AT&T, Verizon, Wireless Silicon Valley, or other service providers in the area.

4.19.2 Regulatory Framework

Federal

Clean Water Act (CWA)

The CWA is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the Federal CWA.

National Pollution Discharge Elimination System (NPDES)

This is a program created for consistency with the Clean Water Act. The Act prohibits discharging “pollutants” through a “point source” into a “water of the United States” unless they have an NPDES permit. The permit contains limits on what can be discharged, creates monitoring and

reporting requirements, and other provisions to ensure the discharge does not diminish water quality and/or people's health.

State

California Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), administered by United States Environmental Protection Agency (U.S. EPA) in coordination with the California Department of Public Health (CDPH), is the main Federal law that ensures the quality of drinking water. Under SDWA, U.S. EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

California Department of Resources, Recycling, and Recovery (CalRecycle)

CalRecycle oversees, manages, and monitors waste generated in California. It provides limited grants and loans to help California cities, counties, businesses, and organizations meet the State waste reduction, reuse, and recycling goals. It also provides funds to clean up solid waste disposal sites and co-disposal sites, including facilities that accept hazardous waste substances and non-hazardous waste. CalRecycle develops, manages, and enforces waste disposal and recycling regulations, including AB 939 and SB 1016 (see below).

Assembly Bill 939 (AB 939) (Public Resources Code 41780)

The California Integrated Waste Management Act Requires cities and counties to prepare integrated waste management plans (IWMPs) and to divert 50 percent of solid waste from landfills beginning in calendar year 2000 and each year thereafter. AB 939 also requires cities and counties to prepare Source Reduction and Recycling Elements (SRRE) as part of the IWMP. These elements are designed to develop recycling services to achieve diversion goals, stimulate local recycling in manufacturing, and stimulate the purchase of recycled products.

Senate Bill (SB) 1016

This requires that the 50 percent solid waste diversion requirement established by AB 939 be expressed in pounds per person per day. SB 1016 changed the CalRecycle review process for each municipality's IWMP. The CalRecycle Board reviews a jurisdiction's diversion rate compliance in accordance with a specified schedule. Beginning January 1, 2018, the Board is required to review a jurisdiction's source reduction and recycling element and hazardous waste element every two years.

Senate Bills 610 and 221, Water Supply Assessment and Verification

Senate Bills (SB) 610 and 221 amended State law to improve the link between the information on water supply availability and certain land use decisions made by cities and counties. Both statutes require detailed information regarding water availability (water supply assessment or WSA) to be provided to city and county decision-makers prior to approval of specified large development projects (projects greater than 500 dwelling units, or an equivalent water demand). Both statutes require this detailed information to be included in the administrative record. Under SB 610, WSAs

must be furnished to local governments for inclusion in the environmental document for certain projects, as defined in Water Code 10912, subject to the California Environmental Quality Act (CEQA). Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. The City's General Plan does not require WSAs but individual future projects within the City that are subject to SB 610 and SB 221 would require WSAs.

Statewide Water Conservation Act of 2009 (Senate Bill X7-7)

In November 2009, the California State legislature passed, and the Governor approved, a comprehensive package of water legislation, including Senate Bill (SB) X7-7 addressing water conservation. In general SB X7-7 requires a 20 percent reduction in per capita urban water use by 2020, with an interim 10 percent target in 2015. The legislation requires urban water users to develop consistent water use targets and to use those targets in their Urban Water Management Plans (UWMPs). SB X7-7 also requires certain agricultural water supplies to implement a variety of water conservation and management practices and to submit Agricultural Water Management Plans.

Government Code Section 65589.7

Section 65589.7 of the Government Code states the housing element adopted by the legislative body, and any amendments made to that element, shall be immediately delivered to all public agencies or private entities that provide water or sewer services for municipal and industrial uses, including residential, within the territory of the legislative body. Government Code Section 65589.7 also requires that water and sewer providers must grant priority for service allocations to proposed developments that include housing units affordable to lower income households.

State Water Resources Control Board

The SWRCB, in coordination with nine Regional Water Quality Control Boards, performs functions related to water quality, including issuance and oversight of wastewater discharge permits (e.g., NPDES), other programs regulating stormwater runoff, and underground and above-ground storage tanks. The SWRCB has also issued statewide waste discharge requirements for sanitary sewer systems, which include requirements for development of a sewer system management plan (SSMP).

Title 22 of California Code of Regulations

Title 22 regulates the use of reclaimed wastewater. In most cases, only disinfected tertiary water may be used on food crops where the recycled water would come into contact with the edible portion of the crop. Standards are also prescribed for the use of treated wastewater for irrigation of parks, playgrounds, landscaping, and other non-agricultural irrigation. Regulation of recycled water is governed by the California State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW). The nine RWQCBs follow SWRCB Order WQ 2016-0068-DDW regarding recycled water use.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Section 10610–10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet (AF) annually, 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 Act requires that urban water suppliers adopt an urban water management plan at least once every five years and submit it to the Department of Water Resources. Noncompliant urban water suppliers are ineligible to receive funding pursuant to Division 24 or Division 26 of the California Water Code, or receive drought assistance from the State, until the urban water management plan (UWMP) is submitted and deemed complete pursuant to the Urban Water Management Planning Act.

California Green Building Standards Code (CALGreen)

The California Green Building Standards Code (Part 11, Title 24, California Code of Regulations), also known as CALGreen, was developed to meet the goals of AB 32, which established a comprehensive program of cost-effective reductions of greenhouse gases (GHG) to 1990 levels by 2020. The residential and non-residential provisions of the 2019 CALGreen Code outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties; establishes the means of conserving water used indoors, outdoors and in wastewater conveyance; outlines means of achieving material conservation and resource efficiency; and outlines means of reducing the quantity of air contaminants. The City requires that all new residential and non-residential construction comply with the mandatory CALGreen Requirements, as described on the City's website: <https://www.redwoodcity.org/departments/community-development-department/building-inspection-code-enforcement/building-applications-handouts>. Related to water conservation, the installation of water-efficient fixtures and equipment in new buildings and retrofits is required under CALGreen.

Regional

San Francisco Bay Region MS4 Permit

Municipal separate storm sewer systems (MS4) are issued permits based on the size of the municipality. MS4 permit requirements include reduction of pollutant discharges to the “maximum extent practicable” and protection of water quality. Requirements also include identification of major outfalls and pollutant loads and control of discharges from new development and redevelopment. To address these objectives, municipalities are required to prepare stormwater management plans. The MS4 Permit also contains requirements that are necessary to improve efforts to reduce the discharge of pollutants in stormwater runoff to the maximum extent practicable and achieve water quality standards. The stormwater management programs have been guided by the following principles:

- A. Utilize existing municipal departments/programs to meet Permit requirements whenever possible.

4.19 – Utilities and Service Systems

- B. Minimize duplication of effort through coordinated Permittee compliance actions.
- C. When necessary, develop new or enhanced stormwater management programs that are both cost-effective and acceptable to the public.

The MS4 permit requires developments and redevelopments to implement Best Management Practices (BMPs) to control potential short- and long-term water pollution/pollutants. The BMPs that are required include the following programs:

- Litter, debris and trash control
- Incident response investigation and reporting
- Permittee activities (for sewage, streets and roads, and MS4 facilities)
- Public education and outreach
- Implementation of Total Maximum Daily Loads
- Reporting Requirements and Notifications

San Mateo Countywide Integrated Waste Management Plan

Pursuant to AB939, the County prepared the 1999 Countywide Integrated Waste Management Plan (CIWMP) in collaboration with its cities to ensure a coordinated effort at solid waste reduction and landfilling. The CIWMP, is comprised of five key elements, the Countywide Summary Plan, the Countywide Siting Element, the Source Reduction and Recycling Element (SRRE), the Household Hazardous Waste Element (HHWE) and the Non-Disposal Facility Element (NDFE).

- Countywide Summary Plan: The Countywide Summary Plan contains goals and policies, as well as a summary of issues faced by the County and its cities. The Summary Plan provides steps needed for all cities to do to meet the 50% diversion mandate.
- Countywide Siting Element: The Siting Element provides evidence that there is at least 15 years of remaining capacity to hold waste for the County and its cities. If there is not adequate capacity, the Siting Element contains discussion of alternative disposal sites and additional diversion programs.
- Source Reduction and Recycling Element (SRRE): The SRRE provides analysis of the local waste stream to determine where to focus diversion efforts.
- Household Hazardous Waste Element (HHWE): The HHWE details programs that assist in recycling, treatment and disposal practices for Household Hazardous Waste programs.
- Non-Disposal Facility Element (NDFE): The NDFE goal is to identify existing and proposed waste management facilities that would require a solid waste permit to be operationally compliant.

Local

Redwood City General Plan

The City General Plan contains the following goals, policies, and implementation programs related to utilities and service systems:

Infrastructure Element

Goal BE-40: Provide safe and reliable potable and recycled water storage and distribution systems that will meet current and future needs.

Policy BE-40.1: Improve the level of service, reliability, quality, and life cycle of the city's potable and recycled water storage and distribution system.

Policy BE-40.2: Maintain the city's water system to ensure adequate fire flow.

Policy BE-40.3: Locate and design new capital-intensive potable and recycled water storage and distribution facilities, particularly storage tanks, in a manner that minimizes visual, cost, and environmental impacts to the surrounding area.

Policy BE-40.4: Design Redwood City's water storage and distribution system to induce rapid recovery and to provide a reliable and sufficient emergency water supply in the event of a disaster.

Policy BE-40.5: Continue to make every practical effort to minimize leaks in the water and recycled water distribution system, through regular monitoring and maintenance.

Policy BE-40.6: Support the expansion of the city's Recycled Water Service Area, and actively promote widespread use of recycled water in and around Redwood City.

Goal BE-41: Provide adequate and reliable wastewater collection and treatment facilities that meet current and future needs.

Policy BE-41.1: Continue to ensure adequate treatment capacity and collection system for Redwood City's wastewater conveyed to at South Bayside System Authority (SBSA) treatment facilities while protecting water quality and public health, and minimizing adverse impacts to the environment.

Policy BE-41.2: Work with South Bayside System Authority (SBSA) member agencies to ensure that the treatment facility has sufficient capacity to meet future wastewater treatment needs.

Policy BE-41.3: Minimize groundwater infiltration and inflow to the wastewater collection system to maintain sufficient peak wet weather capacity and continue to explore other possible options to reduce peak wet weather flow.

Goal BE-42: Support reliable, high quality, and environmentally sound energy distribution systems to meet current and future needs.

Policy BE-42.1: Require that improvements and maintenance to electric and gas transmission and distribution systems that are made to accommodate new growth be performed in a manner that maintains safety, reliability, and environmental compatibility.

Policy BE-42.2: Support efforts to increase the use of renewable energy and low-emission power sources. Encourage the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities.

Policy BE-42.3: Accommodate alternative energy infrastructure as new technology evolves.

Policy BE-42.4: Ensure that pipeline owners protect and maintain underground high-pressure gas pipelines to ensure maximum safety.

Goal BE-43: Advocate for access to high-quality established and emerging communications technologies to facilitate efficient and affordable communication for individuals, businesses, education, and government functions.

Policy BE-43.1: Support efforts to develop improved communications technology in a manner that minimizes visual and environmental impacts to the surrounding area, while benefiting government, business, education, and public safety.

Policy BE-43.2: Require new buildings, particularly taller buildings, to be designed with sufficient space to accommodate wireless communications equipment.

Policy BE-43.3: Make efforts to accommodate future communications and information technologies as they develop and to replace or remove redundant or outdated technology and its associated equipment.

Goal BE-44: Preserve community aesthetics while providing for utility needs.

Policy BE-44.1: Reduce the visual impact of aboveground and overhead utilities, including electric lines, by working with Pacific Gas and Electric Company (PG&E) to maximize opportunities to place utilities underground.

Policy BE-44.2: Continue to require the placement of utilities underground with new development.

Policy BE-44.3: Permit new freestanding telecommunications towers only when there are no feasible alternatives.

Policy BE-44.4: Strengthen requirements for underground utilities in older sections of the city as part of redevelopment projects to address public safety issues and to improve the aesthetic quality of streets and neighborhoods.

Goal BE-45: Minimize the volume of solid waste that enters regional landfills.

Policy BE-45.1: Meet or exceed State mandates regarding the diversion of waste from landfills.

Policy BE-45.2: Encourage recycling, composting, and source reduction by residential and non-residential sources in Redwood City.

Policy BE-45.3: Promote green building practices with respect to recycling material from building demolition and using recycled building materials in new construction.

Policy BE-45.4: Support retention and expansion of businesses and industries in Redwood City involved in recycling materials, especially in areas proximate to the Port of Redwood City.

Policy BE-45.5: Take a leading role in waste reduction by promoting recycling and composting, purchasing post-consumer recycled products for City facilities, using recycled materials in City operations, and reducing the overall amount of solid waste that is produced.

Policy BE-45.6: Promote recycling by supporting local public and private recycling programs that provide opportunities for businesses and the general public to recycle waste.

Program BE-126: Funding for Water System Maintenance and Upgrades. As appropriate, allocate increased funding in Redwood City’s Capital Improvement Program to upgrade and/or replace pipes, storage tanks, and pump stations in the Redwood City water system; monitor for water losses; and carry out preventive measures to avoid major disruptions or water losses to the water storage and distribution system. Prioritize investment in water supply delivery upgrades in areas where sub-standard size water mains currently exist.

Program BE-127: Wastewater System Maintenance. Continue to provide funding to repair, maintain, and upgrade the city’s wastewater collection system. Annually survey at least 15 miles of sewer pipeline to identify necessary repairs to pipeline cracks and improperly sealed joints that may cause groundwater infiltration. If pipeline deterioration accelerates, increase the rate of pipeline replacement accordingly. Enforce regulations that restrict the discharge of substances such as grease, oil, mud, silt, and pollutants into the sewer system.

Program BE-128: Future Wastewater Collection Agreements. When parties outside of the service area seek wastewater collection and conveyance agreements, analyze capacity and consider potential future impact to the City. Ensure that adequate capacity is available for future development as identified in this General Plan.

Program BE-129: Utility Project Review. Review proposed new utility projects to ensure that they are safe, environmentally sound, and compatible with surrounding land uses.

Program BE-130: Underground Utilities.

- Review PG&E maintenance procedures to ensure underground high-pressure gas pipelines in Redwood City are protected and maintained. Maintain maps of high- pressure pipelines in Redwood City for review when new development is proposed.
- Consult with PG&E to analyze the feasibility and cost of undergrounding portions of its overhead high-voltage transmission lines within existing developed areas and areas designated for new development.

- Continue to enforce policies for undergrounding utilities in conjunction with new development and major street and roadway improvements. Explore potential programs and funding alternatives to underground existing overhead utilities in older areas of the city such as through assessment districts or redevelopment.

Program BE-131: Telecommunications Infrastructure Review. Review the installation of new communications infrastructure to ensure compatibility with surrounding uses and minimize visual impacts or other adverse impacts. Modify the Zoning Ordinance as necessary to allow for installation of improved telecommunications and wireless infrastructure while minimizing visual, noise, and other impacts of such installations.

Program BE-132: Expand Public Access to Wireless Internet. Pursue opportunities to expand the public's access to wireless communication services in public spaces and community gathering places, as identified in the Building Community Element. Encourage private businesses to establish their own local area networks. Support the goals of Joint Venture's Wireless Silicon Valley project to obtain high quality wireless Internet access to benefit business, government, and education while providing improved communications opportunities for all of Redwood City's population.

Program BE-133: Require Technology Installation in Large-Scale Projects. Establish requirements for the installation of high quality internal telecommunications technologies in new large-scale planned communities and office and commercial developments.

Program BE-134: Green Building Ordinance. As appropriate, amend the Green Building Ordinance to keep pace with new technologies and procedural/process advancements.

Program BE-135: Recycling Collection Facilities in New Development. Revise the Zoning Ordinance to require development projects to incorporate collection facilities for recyclable materials in development projects. The collection facilities may be established as part of trash enclosure areas.

Program BE-136: Alternative Energy/Building Performance Initiatives. Consider adopting building efficiency technology and standards to maximize energy performance including but not limited to window glazing and efficiency improvements. Also consider offering or consulting with PG&E to offer financial incentives for retrofitting existing buildings.

Program BE-137: Solar Power Agreements. Consider requiring large development projects and large redevelopment projects to be required to enter into Solar Power Agreements.

Program BE-138: Water Master Plan. Complete a Water Master Plan that includes recommendations to improve the water distribution capacity, develop criteria for replacement strategy, and provide system reliability during a seismic event. Review and implement recommendations and update the Water Master Plan every five years to recognize accomplishments and changes to the water system. Assess parameters and assumptions inherent in Attachment Q. Utilize water demand assumptions from future UWMPs and this General Plan, and adjust Attachment Q as appropriate.

Program BE-139: Expand Recycled Water Use.

- Complete construction of the proposed pipes to expand the City's recycled water services to the majority of Redwood City. Explore opportunities to export recycled water to adjacent communities and/or exchange recycled water for drinking water.
- Conduct a feasibility study to assess costs and impediments to expanding the Recycled Water Service area to include lands southeast of Woodside Road.
- Implement the Recycled Water Use Ordinance to require new development to use recycled water for landscape irrigation and other non-potable uses, where available.

Program BE-140: Sewer Master Plan. Consider completing a Sewer Master Plan that includes recommendations for replacement, maintenance, and improvement of sewer services. If completed, implement recommendations and periodically update the Sewer Master Plan.

Program BE-141: Support Recycling Industries. Ensure the retention of industrial lands near the Port of Redwood City, and encourage the location of recycling and salvage businesses in the area.

Program BE-142: Accommodate Alternative Energy Infrastructure. Analyze current and projected demand for plug-in stations for electric, plug-in hybrid, and other alternative vehicle infrastructure in City parking structures.

Program BE-143: Waste Diversion. Increase efforts to divert waste from landfills. Concentrate on major waste diversion opportunities in the non-residential sector, identifying and consulting with the city's largest non-residential waste generators to reduce their waste generation and rates of waste disposal.

Program BE-144: Recycling and Composting Education and Incentives.

- Consult with San Mateo County RecycleWorks to provide educational programs to schools, businesses, and the general public on the benefits of recycling and the various recycling opportunities available in San Mateo County. Encourage local school districts to participate in Redwood City and San Mateo County recycling programs. Ensure that all new businesses upon issuance of any City permit or payment of fees are aware of mandate to recycle and are provided information on Green Business Certification. To act as an example of sustainability, review City purchasing procedures to ensure the maximum amount of recycled materials are used in City operations.
- Confirm that the City's contract with its waste services provider incentivizes higher composting and recycling rates and decreases the volume of waste sent to landfill.
- Partner with San Mateo County RecycleWorks to provide information and resources to help increase the number of homes, restaurants, and community members with backyard or indoor composting. Work with RecycleWorks and Recology to develop a bin distribution program for Redwood City.

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- Support a range of potential community-oriented recycling and re-use activities, such as citywide e-waste recycling events; block or neighborhood-wide garage sales; and household hazardous materials drop-offs. Encourage local school districts to participate in recycling programs.

Program BE-145: Water System Agency Consultation. Consult with the San Francisco Public Utilities Commission (SFPUC) in carrying out its Water System Improvement Program to upgrade the regional water system storage and delivery infrastructure to improve reliability. Encourage the SFPUC to minimize any adverse environmental impacts and to implement appropriate mitigation measures that may result from major capital improvements to the regional water system in Redwood City.

Program BE-146: Renewable and Low-Emission Power. Be an active and vocal PG&E customer, encouraging the company to continue introducing new renewable and low-emission power sources into its energy mix. Participate in renewable-purchasing programs PG&E may develop, as appropriate.

Public Safety Element

Goal PS-7: Provide adequate and appropriately-designed storm drainage and flood control facilities to meet current and future needs and minimize the risk of flooding.

Policy PS-7.2: Improve the drainage system's level of service to minimize storm flooding.

Policy PS-7.4: Prioritize improvements to Redwood City's storm drain system in areas that are prone to flooding. Encourage the use of preventive and low-impact measures as well as maintaining, upgrading, and constructing new flood prevention infrastructure to reduce the risk of flooding.

Program PS-28: Stormwater System Maintenance and Upgrade Funding. As appropriate, allocate increased funding in Redwood City's Capital Improvement Program to upgrade and/or replace stormwater drainage facilities.

Program PS-43: Storm Drainage Facility Master Plan. Develop a Storm Drainage Master Plan to address flooding hazards and storm drainage facility needs. The Storm Drainage Master Plan should seek to balance the two primary functions of creeks: flood control and riparian habitat.

Program PS-47: Community Facility Improvement Maintenance. Consider establishing a Community Facility Improvement Maintenance District to assist with creek maintenance issues.

Program BE-53: Interagency Stormwater Drainage Consultation. Meet and consult with San Mateo County and surrounding jurisdictions to ensure that the other jurisdictions assume responsibility for reducing stormwater flow into Redwood City's drainage system and improve the drainage in their low-lying areas. Include the development community in these discussions to help assess how to best improve potential flooding in low-lying areas.

Natural Resources Element

Goal NR-1: Ensure that adequate, equitably priced, and sustainable water supplies and associated infrastructure are available to serve the needs of existing and future Redwood City water users.

Policy NR-1.1: Maintain or increase the city’s contractual amount of water, consistent with the SFPUC Water Supply Agreement.

Policy NR-1.2: Seek out new sources of potable water for Redwood City. Continue to explore the possibility of developing additional water sources, including the use of groundwater, that are cost-effective and do not result in long-term, unacceptable environmental damage. Where feasible, use the latest water science and consult with the Department of Water Resources and other applicable regional water agencies. Consider using groundwater wells for emergency response purposes.

Policy NR-1.4: Explore surface water transfers from areas outside of the Bay Area Water Supply and Conservation Agency.

Policy NR-1.5: Explore the potential for transferring recycled water in exchange for potable water with other agencies. Explore the potential for increasing recycled water supply for local use.

Goal NR-2: Reduce water consumption through aggressive implementation of conservation policies and programs.

Policy NR-2.1: Encourage, facilitate, and/or require the use of water conserving appliances and fixtures in new development.

Policy NR-2.2: Encourage the use of drought-tolerant, low-water consuming landscaping as a means of reducing overall and per capita water demand.

Policy NR-2.3: Continue to develop and implement water conservation programs in response to community input and to keep pace with changing technology.

Policy NR-2.4: Continue to support water conservation programs for existing homes and businesses, including but not limited to water usage monitoring programs, low-flow toilet and plumbing fixture rebates/exchanges, etc.

Goal NR-3: Coordinate land use and water supply planning processes so that adequate water supplies are available for proposed development.

Policy NR-3.1: Require new development to demonstrate that adequate water is available before project approval and to fund its fair-share costs associated with the provision of water service.

Policy NR-3.3: Access reliable data and information on water use and supply to thoroughly evaluate the potential water supply impacts and needs of proposed development projects and promote effective decision-making.

Program NR-1: Water Conservation Programs. Pursue a range of conservation programs and tools, including but not limited to the current California Urban Water Council's "Best Management Practices," such as redesigned water rate structures.

Program NR-2: Water Usage Monitoring. Continually track actual overall water use in Redwood City and provide an annual report that measures use against a baseline of UWMP demand projections. Create and distribute the report in a manner that promotes public understanding and participation in water management and planning, as well as information for City staff and decision-makers.

Program NR-3: UWMP Update. Continue to update the Urban Water Management Plan (UWMP) every five years.

Program NR-4: Transferring Supply Assurances. Encourage developers to work with City staff and BAWSCA to offset new water demand by transferring supply assurances from other agencies to Redwood City. Consult with other water agencies to promote surface water transfers, as necessary.

Program NR-5: Water System Fee Requirements. Review and update ordinances, policies, and other requirements establishing the payment of fees and charges to ensure new development pays its fair share of operating and maintaining the City's water systems, as necessary.

Program NR-6: Ongoing Water Studies. Continue to research the relationship between water supplies, water service, land use, and the growth of the community to best estimate the city's future water supply needs.

Program NR-7: New Development Water Demand Tracking. Develop a standardized method to track and analyze water demand and available supply for new developments. Consider expanding the City's application of SB 610 and SB 221 planning requirements to a broader range of projects for monitoring ability. Review the city's total water demand and supply annually to ensure that water supply is available for new development allowed by the Built Environment Element.

Program NR-8: Native Landscape/Drought Tolerant Plant Materials. Encourage and promote the use of native and/or drought tolerant plants in landscaping for existing and new development.

Program NR-9: Public Information and Education.

- Provide periodic information through the City's water utility billings, websites, and local newspapers about water issues, concerns, and programs.

- Provide educational information on the use of, and as appropriate, the hardware for water-conserving technologies such as low-flush toilets, waterless urinals, low-flow showerheads and faucets, and water-wise irrigation, landscaping, and gardening methods, among others.

Program NR-10: Citizen Participation in Water Supply Discussions. Expand opportunities for interested residents and businesses to participate meaningfully in long-term water supply planning decisions.

Program NR-11: BAWSCA Membership and Recycled/Potable Water Transfers. Maintain Redwood City's membership in and support for BAWSCA. Continue to participate in the institutional dialog regarding regional water supply. Consult with BAWSCA to explore the potential for water transfers of recycled water for potable water.

Program NR-12: Water Supply Planning. Consult with the California Department of Water Resources and other regional water agencies such as the Bay Area Water Forum to use the latest water science practices, when feasible. Continue to comply with the water supply planning requirements of SB 610 and SB 221 to ensure adequate water supplies are available to new development.

Recycled Water Use Ordinance

The purpose of Ordinance No. 2335 (now City Code Chapter 38, Article VIII) (Recycled Water Use) is to ensure that the City remains consistent with the California Water Code (CWC) by achieving the maximum public benefit from the use of the City's recycled water supply. The Ordinance identifies the required and voluntary uses of recycled water, including requirements for dual plumbing. For sites located outside the Recycled Water Service Area, the Ordinance encourages existing and new customers to consider the feasibility of providing for the use of recycled water for landscape irrigation, internal uses (such as toilet flushing and commercial cooling), and industrial processes. To prepare new developments for future use of recycled water, the City recently developed a Recycled Water Development Standard.

Redwood City Urban Water Management Plan

Redwood City serves water to customers within the incorporated limits of the City as well as portions of San Mateo County. Redwood City delivers water to residential, commercial, industrial, and governmental customers and purchases all of its potable water supplies from the San Francisco Public Utilities Commission (SFPUC). Additionally, the City serves recycled water to its customers via its recycled water program.

As of 2020, the City serves 23,974 connections within its service area. This UWMP is a foundational document and source of information about the City's historical and projected water demands, water supplies, supply reliability and potential vulnerabilities, water shortage contingency planning, and demand management programs. Among other things, it is used as:

- A long-range planning document for water supply and system planning; and
- A source for data on population, housing, water demands, water supplies, and capital improvement projects used in:

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- Regional water resource management plans prepared by wholesale water suppliers and other regional planning authorities (as applicable),
- General Plans prepared by cities and counties, and
- Statewide and broad regional water resource plans prepared by the California Department of Water Resources (DWR), the State Water Resources Control Board (State Board), or other state agencies.

The UWMP Act requires urban water suppliers to prepare an UWMP every five years and to submit this plan to the DWR, the California State Library, and any city or county within which the supplier provides water supplies. All urban water suppliers, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet annually are required to prepare an UWMP (CWC §10617). Redwood City's UWMP was last updated in 2021 (the 2020 UWMP).

4.19.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to utilities and service systems if it would:

- A. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- B. Have insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- C. Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the projected demand in addition to the provider's existing commitments;
- D. 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;
- E. Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste; or

4.19.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

The Project does not propose revised or new policies or implementation programs that would specifically avoid or reduce significant utilities and service systems impacts.

4.19.5 Impacts and Mitigation Measures

This section describes potential impacts related to wastewater treatment requirements, water and wastewater treatment facilities, stormwater drainage facilities, water supplies, wastewater

treatment capacity, landfill capacity, and solid waste which could result from the implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

Impact UTIL-1 – Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Analysis of Impacts

Implementation of the Project could generate population growth related to future residential development. This growth would require the planned expansion of existing infrastructure as growth occurs, along with the likely development of new facilities related to utility infrastructure, which are reviewed on a regular basis. The proposed Project does not include any specific proposals for new facilities, although new or expanded facilities would result if and when the projected population growth occurs. All future development and/or infrastructure projects subject to CEQA would be required to undergo site-specific environmental review.

Water. The City of Redwood City serves water to customers within the incorporated limits of the City, portions of the Town of Woodside, portions of the City of San Carlos, as well as portions of unincorporated San Mateo County. Redwood City delivers water to residential, commercial, industrial, and governmental customers and purchases all of its potable water supplies from SFPUC.

The Project would increase the projected number of housing units and the population in the Planning Area over those projected in the 2010 General Plan. The City's 2020 UWMP was based in large part on the land uses and growth projections of the 2010 General Plan. Therefore, the City's UWMP would need to be revised based on the new Project land uses and projections.

As described in Chapter 3, Project Description, the Planning Area's baseline (2020) population (residents) is 107,731 persons, and the anticipated growth associated with the Project result in a future (2040) population of 131,347 persons. If each of these additional 23,616 residents consumed an additional 63 gallons per person per day,¹ the growth in the Planning Area would eventually require an additional 1.49 million gallons (4.57 AF) of water per day, or 1,668 acre-feet per year (AFY), which would need to be provided by the City. Separate from potable water supply issues, the anticipated population growth is also expected to generate demand for expanded storage (water tanks) to increase water supply for emergency services.

According to the City's 2020 UWMP, the potable water demand in the UWMP service area in 2020 was 9,852 acre-feet per year (AFY). As discussed above, the additional 23,616 residents anticipated under the Project would generate an additional 1,668 AFY in water demand. The Project's additional population growth would, therefore, increase the total water demand in the UWMP service area to 11,520 AFY, which falls below the City's ISG from SFPUC by 723 AFY.

¹ Based on the City's 2020 per capita water use of 63 gallons per capita per day (gpcd), as documented in the 2020 UWMP.

As such, it appears that the ISG from the SFPUC would be sufficient to serve the additional population generated by the Project in the future during normal years.

Critical Water Supply Analysis

In addition to the general assessment above, the following analyzes the City’s projected water supply and demand to determine if there are any critical water supply issues that result from the increased population under the Project. This discussion is based in part on the analysis provided in the City’s 2020 UWMP, which was prepared in coordination with the Bay Area Water Supply and Conservation Agency (BAWSCA), the BAWSCA member agencies, the SFPUC, the public, and other appropriate entities. The BAWSCA represents the City and 25 other water districts, cities, and utilities, collectively referred to as the “Wholesale Customers,” in negotiations and other coordination efforts with the SFPUC.

The SFPUC historically has met demand in its service area in all year types from its watersheds, including the San Mateo County watershed, in which the Planning Area is located. In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmon populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta.

If the Bay-Delta Plan Amendment is implemented, the SFPUC would be able to meet the projected water demands presented in the City’s Urban Water Management Plan (UWMP) in normal years, but would experience supply shortages in single dry years or multiple dry years. The SFPUC has provided all of the Wholesale Customers with estimates of the RWS reliability in all year types through 2045. SFPUC and BAWSCA have provided revised methodologies to allocate RWS supplies to the City during projected future single dry and multiple dry years in instances where the projects supply shortfalls are greater than 20 percent.

The adoption of the Bay-Delta Plan Amendment may significantly impact the supply available from the RWS. Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the SFPUC conducted a water service reliability assessment that includes: (1) a scenario in which the Bay-Delta Plan Amendment is fully implemented in 2023, and (2) a scenario that considers the SFPUC system’s current situation without the Bay-Delta Plan Amendment. SFPUC assumed for the purposes of the SFPUC’s draft UWMP that the Bay Delta Plan Amendment would be fully implemented starting in 2023.

Consistent with SFPUC’s approach and guidance from SFPUC and BAWSCA, the City’s UWMP presents results for its water service reliability assessment and its drought risk assessment. Redwood City has relied on SFPUC’s RWS supply reliability estimates, and the drought allocation structure provided by SFPUC and BAWSCA to estimate available RWS supplies in dry year types through 2045. Based on a modeling scenario that assumes full implementation of the Bay Delta Plan Amendment in 2023, SFPUC modeling results for this scenario show total Wholesale RWS supply shortfalls ranging from 36 to 54 percent of projected purchases during dry years after 2023. As such, significant water supply shortfalls are currently projected in future single and multiple dry years, directly because of the Bay-Delta Plan Amendment implementation. Results for the

scenario without the Bay-Delta Plan Amendment indicated that the SFPUC would be able to meet 100 percent of Wholesale projected purchases during all year types except during the fourth and fifth consecutive dry years for base year 2045 when 15 percent Wholesale supply shortages are projected.

The City's Individual Supply Guarantee (ISG) is 10.93 million gallons per day (MGD), or approximately 12,243 acre-feet per year (AFY). As stated above, the additional population generated by the Project would not exceed the City's ISG, rather, it would result in a small surplus over the ISG. As such, the City's ISG would be sufficient to serve the Project population in normal years, as SFPUC is obligated to provide Redwood City with up to 100 percent of Redwood City's ISG during normal years. However, the SFPUC appears not to be able to meet its contractual obligations (i.e., Level of Service goals) and Redwood City's forecasted demands during droughts. Recycled water supply is expected to be 100 percent reliable in all year types.

Recycled Water. Silicon Valley Clean Water (SVCW) produces recycled water for use within the City. To accommodate future housing, employment, and population growth within the City, the City initiated a water recycling program and an aggressive water conservation program to reduce water demands and to meet both current and future water needs. According to the City's 2020 UWMP, approximately 856 AFY of recycled water was used in Redwood City in 2020. A majority of the recycled water use (832 AFY) was for landscape irrigation purposes; the remaining 24 AFY was used for toilet and urinal flushing, as well as for construction. Currently, the City's recycled water project has a design capacity of a maximum of 3,238 AFY of average annual demand. However, as noted in the 2020 UWMP, it may be possible that existing facilities can produce more recycled water depending on how certain facility elements are operated, modified, and/or expanded. Further, some additional capacity was approved by the City Council to build flexibility into the system should the system evolve to serve additional customers in the future.

While the connection of potential housing sites included in the Housing Element Update to the City's recycled water system is likely to reduce the potable water demand associated with the Project, it may be cost prohibitive as a source of water for some projects and cannot be relied on as the sole solution to address all water needs. As described in the 2020 UWMP, the City plans to rely on recycled water as a potential method to offset the use of potable supplies in response to future projected water shortages. Recycled water system connections to any of the potential housing sites included in the Housing Element Update would be funded and constructed by individual developers. Proposed recycled water system connection would be required to undergo environmental review as part of the City's development review process. Any potential environmental impacts associated with the connection of a Housing Element Update site to the City's recycled water system would be evaluated on a case-by-case basis as part of the CEQA compliance process.

The 2020 UWMP requires implementation of specific demand reduction strategies at certain stages to address deficiencies through its Water Shortage Contingency Plan. The primary objective of the WSCP is to ensure that the City has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. Consistent with California Water Code (CWC) §10632, the WSCP includes six levels to address shortage conditions ranging from up to 10% to greater than 50% shortage, identifies a suite of demand mitigation measures for the City to implement at each level, and

identifies procedures for the City to annually assess whether or not a water shortage is likely to occur in the coming year, among other things (see Tables 8-1 through 8-3 of the UWMP). Each stage of the City's WSCP requires declaration by the City Council once a governing body, such as SFPUC, has required a voluntary or mandatory reduction in water use due to water supply shortages or an emergency. Each stage includes implementation of a mandatory water allocation program, voluntary restrictions on end uses, as well as various agency actions. Redwood City intends to implement its WSCP to reduce water use and address the projected supply shortfalls.

Even with implementation of the WSCP, the 2020 UWMP concludes there may still be a shortfall in multiple dry year scenarios with the implementation of the Bay Delta Amendment. However, the 2020 UWMP concludes the anticipated shortages in supply can be reduced by implementing the various stages of curtailment measures in the Water Shortage Contingency Plan (WSCP), implementing General Plan policies NR-2.1 through NR-2.4, expanding of the City's recycled water program, and continuing implementation of local and State existing water conservation efforts (see section 4.19.2 Regulatory Framework). All development within the Planning Area would be subject to water use limitations in the WSCP in the event of water shortages resulting from dry years and implementation of the Bay-Delta Plan Amendment, should such limitations be imposed.

The City has taken measures to ensure its potable water supply system remain operational during emergencies. Ten booster pump stations are located throughout the City's potable water distribution system. Six of the pump stations have permanent standby generators; the City also has four portable generators and a portable pump for emergency use. A seismic improvement project is currently in progress for the City's water tanks and pump stations. The City has identified an emergency water tank as a need to improve reliability of its potable water supply system during emergencies.

Projects developed in the Planning Area would be required to comply with the CALGreen Code, which requires that new construction use high-efficiency plumbing fixtures and adequate irrigation control features. Redwood City Municipal Code Section 38.52 also requires all new multi-family residential properties to use recycled water for irrigation.

Future updates to the City's UWMP would need to reflect the updated projections associated with the Project. As noted above in the regulatory section, Government Code §65589.7 requires new Housing Elements be provided to water and sewer services providers immediately upon adoption so they may be accounted for in the next UWMP, anticipated in 2025-2026. The City will update the next UWMP in 2025 and adopt the next UWMP in June 2026.

The General Plan's Infrastructure Element and Natural Resources Element contain adopted goals, policies, and implementation programs related to water supply and service. Goals BE-40, NR-1, NR-2, NR-3, Policies BE-40.1 through BE-40.6, NR-1.1 through NR-1.5, NR 2.1 through NR-2.4, and NR 3.1 and NR3.3; and Programs BE-126, BE-129, BE-138, BE-139, BE-145, and NR 2 through NR-12 would ensure adequate and reliable water supplies and associated infrastructure would meet current and future needs. Of these goals, policies, and programs, those related to purified recycled water are being implemented and those related to ground water are being assessed. Together these sources present a meaningful opportunity for the City to increase water independence. Other sources of new potable water such as potable water transfers and increased contractual amounts from the SFPUC are unlikely or too speculative to evaluate in the

EIR. Given the projections associated with the Project, it is possible that new or expanded facilities may be needed to meet water demand for domestic, irrigation, and fire flow uses. Any future expansion of existing facilities or construction of new facilities would be required to undergo environmental review pursuant to CEQA. Water-related impacts would be identified, along with measures to mitigate any significant impacts, as part of the CEQA compliance process for future project-specific proposals.

As specific projects are proposed within the Planning Area, potential water-related impacts would be evaluated and identified, along with measures to mitigate any significant impacts, as part of the CEQA compliance process for future project-specific proposals. In adherence with SB 610, any new development project subject to CEQA that meets specific development specifications, such as residential development with over 500 dwelling units, would need to complete a Water Supply Assessment (WSA).² As required in General Plan Policy NR-3.1, new development must demonstrate that adequate water is available before project approval and to fund its fair-share costs associated with the provision of water service. A WSA may reveal insufficient water availability to a site and may require installation of an extension of recycled water supply pipelines to provide development projects with sufficient recycled water capacity for all of the project's recycled water demands while achieving the required pressure, flow, and other design criteria of recycled water system pursuant to City standards. Additionally, where a developer pays the entire cost of recycled water pipeline extension to an area, the original developer may be reimbursed by subsequent development projects located within the service area of the pipeline extension, which must pay a fair-share contribution towards the extension of recycled water supply pipelines to connect a project to the City's recycled water system prior to ground disturbance.

With implementation of the UWMP WSCP, the adopted General Plan goals, policies, and implementation programs listed above related to safe and reliable water supply, local and State existing water conservation efforts, in combination with the CEQA compliance process for future site-specific development proposals and infrastructure projects, which would evaluate water-related impacts and identify mitigation measures, if necessary, the Project's potential impacts due to relocation or construction of water facilities would be ***less than significant***.

Wastewater. The proposed Project would result in increased generation of wastewater due to the anticipated population growth that would occur under the Project. Wastewater treatment for Redwood City is provided by Silicon Valley Clean Water (formerly South Bayside System Authority (SBSA)) treatment plant. SVCW operates under a joint powers authority (JPA) with four member agencies: the cities of Redwood City, Belmont, and San Carlos, and the West Bay Sanitary District (serving Menlo Park, Atherton, Portola Valley, and parts of East Palo Alto and San Mateo County). The Redwood City Public Works Services Department is responsible for operation and maintenance of the sanitary sewer collection system serving Redwood City.

As described in Chapter 3, Project Description, the Planning Area's baseline (2020) population (residents) is 107,731 persons, and the anticipated growth associated with the Project result in a future (2040) population of 131,347 persons. If these additional 23,616 residents generated an

² It should be noted that Water Supply Assessments (WSAs) are not required for program-level environmental review.

additional 60 gallons per person per day of wastewater,³ the Planning Area's growth would eventually generate approximately 1.42 million gallons per day (MGD), or 5 acre-feet (AF), of additional wastewater that would need to be conveyed via Redwood City facilities and treated via SVCW facilities. The SVCW WWTP has a permitted operating capacity of 29 MGD average dry weather flow (ADWF) and a design capacity of 71 MGD peak wet weather flow (PWWF). Pursuant to the JPA, Redwood City has maximum capacity rights of 11.4 MGD ADWF and 30.5 MGD PWWF. As discussed previously, the City generated 7,791 acre-feet (AF) of wastewater to the SVCW WWTP in 2020 or approximately 21 AF per day (6.8 MGD). The additional projected wastewater generated by growth under the Project would result in generation of an additional 4.36 AF of wastewater per day compared to the City's wastewater discharges to the SVCW WWTP in 2020, representing a 20.8 percent increase in daily wastewater generation. The additional wastewater generated by future growth under the Project (1.42 MGD) in combination with current daily wastewater discharges to the SVCW WWTP (6.8 MGD) would total 8.22 MGD, which is within the City's daily maximum capacity rights of 11.4 MGD.

The General Plan contains goals, policies, and implementation programs related to wastewater collection and treatment service. Goal BE-41, Policies BE-41.1 through BE-41.3, and Programs BE-126, BE-128, and BE-129 are intended to ensure the adequate and reliable wastewater collection and treatment facilities that meet current and future needs.

In addition, to fund necessary sewer system infrastructure improvements, the City charges a one-time sewer system capital facilities fee of \$960 for each residential dwelling unit and one-time a wastewater treatment capacity fee of \$2,135.70 for each single-family, condominium, and townhouse dwelling unit; \$3,480.40 for each duplex unit; and \$1,423.80 for each multi-unit dwelling structure/in-law unit (City of Redwood City 2018). The City also collects bi-monthly service user fees of \$178.56 per dwelling unit for 1-9 dwelling units and \$160.72 per dwelling unit for 10+ dwelling units (City of Redwood City 2022).

While there would likely be existing wastewater facility capacity to treat the additional demand associated with the Project, the SCVW WWTP serves other jurisdictions as well and it is possible that new or expanded facilities may be needed to meet wastewater demand. Any future expansion of existing facilities, or construction of new facilities, would be required to undergo environmental review pursuant to CEQA. Individual development projects may be required to improve wastewater infrastructure as part of project approval. Given continued implementation of the General Plan goals, policies, and implementation programs listed above related to wastewater collection and treatment, in combination with the CEQA compliance process for future site-specific development proposals, would have future development projects evaluate wastewater-related impacts, identify mitigation measures, and construct all capacity-enhancing improvements identified at the project-specific level. Therefore, the Project is a program-level set of documents and policies and the Project's potential impacts related to relocation or construction of wastewater facilities would be ***less than significant***.

³ Based on a 70-gallon per capita per day (gpcd) wastewater generation rate, per the 2010 Redwood City New General Plan.

Stormwater. The City maintains its own local storm drain system. Stormwater runoff from the Planning Area and neighboring communities is discharged into the Bayfront Canal, Redwood Creek, Cordilleras Creek, pumping stations, and/or various conduits and outfalls prior to being discharged into the Bay. Drainage from the Atherton Channel (Marsh Creek) is the largest contributor of stormwater runoff to the Bayfront Canal.

The growth projections of the proposed Project are different than those of the 2010 General Plan, but it is overly speculative to predict specifically how the increases in projected housing and population would affect runoff and the regional storm drain system. In addition, as the majority of development associated with implementation of the Project would occur within already developed urban areas, it is not anticipated that there would be a substantial increase in impervious surfaces associated with implementation of the Project.

The General Plan contains goals, policies, and implementation programs related to stormwater runoff control and treatment. Goal PS-7, Policies PS-7.2 and PS-7.4, and Programs PS-28, PS-47, and BE-53 are intended to reduce runoff and ensure adequate and appropriately-designed storm drainage and flood control facilities to meet current and future needs and minimize the risk of flooding.

Any new development would need to adhere to applicable permit requirements, including the new development provisions of the MRP that limit impervious surface area and require the implementation of on-site runoff treatment measures. If improvement of stormwater infrastructure is required for approval of a development project, the project developer would fund and build said improvements. Based on the MRP requirements and General Plan goals, policies, and implementation programs to reduce future offsite runoff, the Project would not have significant short- or long-term impacts regarding stormwater collection and disposal service and would not result in the relocation or construction of new or expanded stormwater facilities, the construction or relocation of which could cause significant environmental effects. This impact would be ***less than significant***.

Electric Power, Natural Gas, and Telecommunications. Electrical power and natural gas services to the Planning Area are provided by Pacific Gas & Electric Company (PG&E). Telecommunication services would be provided by AT&T, Verizon, Wireless Silicon Valley, or other service providers in the area. Each of these companies have their own master service plans in terms of regional and local electrical lines, gas pipelines, and telecommunications cables. These master plans are based in part on the land uses and growth projections in the general plans of the various jurisdictions within each particular service area.

The growth projections of the proposed Project are different than those of the 2010 General Plan and the increases in projected housing and population may have incremental impacts on electrical, natural gas, or telecommunications services in the Planning Area.

The various organizations that provide energy and telecommunication services to the City regularly review and update their service network based on population and land use changes. In addition, the General Plan contains goals, policies, and implementation programs that would help enhance energy and communications systems services to the City, and ensure energy and communications systems infrastructure improvements are sited and constructed safely and in consideration of potential environmental impacts. These goals, policies, and implementation

programs include Goals BE-42 and BE-42, Policies BE-42.1 through 42.4, Policies BE-43.1 through 43.3, Programs BE-129 through BE-133, and Programs BE-1236 and BE-137. Any infrastructure improvements that would be required to serve specific development sites would undergo the City's development review process, including design review and CEQA review, if required, and would be subject to the adopted General Plan goals and policies. Implementation of the City's development review process would ensure the Project's potential incremental impacts related to energy and telecommunication services would be reduced or avoided. This impact would be ***less than significant***.

UTIL-1 Summary. Based on the above analysis, the proposed Project would have less than significant impacts related to sewer/wastewater treatment, storm drainage, and other utility services in the Planning Area. Potential development and site-specific impacts related to utilities systems and infrastructure would be analyzed and mitigated, if necessary, at the individual project level during the City's development review process. The Project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Water Supplies

Impact UTIL-2 – Would there be sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?

Analysis of Impacts

The City of Redwood City serves water to customers within the incorporated limits of the City as well as unincorporated portions of San Mateo County. Redwood City delivers water to residential, commercial, industrial, and governmental customers and purchases all of its potable water supplies from the SFPUC. Additionally, the City serves recycled water to its customers via its recycled water program. As of 2020, the City serves 23,974 connections within its service area (City of Redwood City 2021).

As described in Chapter 3, Project Description, the Planning Area's baseline (2020) population (residents) is 107,731 persons, and the anticipated growth associated with the Project result in a future (2040) population of 131,347 persons. The Project would increase the projected number of housing units and the population in the Planning Area over those projected in the 2010 General Plan. Projected population increase under the proposed Project would also exceed the 2040 population estimate upon which the UWMP projected future service.

As discussed under UTIL-1, the City's Individual Supply Guarantee (ISG) is 10.93 million gallons per day (MGD), or approximately 12,243 acre-feet per year (AFY). The additional population generated by the Project would not exceed the City's ISG at full buildout. The City's ISG would be sufficient to serve the Project population in normal years, as SFPUC is obligated to provide Redwood City with up to 100 percent of Redwood City's ISG during normal years. However, significant water supply shortfalls are currently projected in future single and multiple dry years, directly because of the Bay-Delta Plan Amendment implementation. Under this supply scenario, SFPUC appears not to be able to meet its contractual obligations (i.e., Level of Service goals) and Redwood City's forecasted demands during droughts. However, the 2020 UWMP concludes the anticipated shortages in supply can be reduced by implementing the various stages of curtailment measures in the Water Shortage Contingency Plan (WSCP), implementing General Plan policies NR-2.1 through NR-2.4, expanding of the City's recycled water program, and continuing implementation of local and State existing water conservation efforts (see section 4.19.2 Regulatory Framework).

In addition, the adopted General Plan's Infrastructure Element and Natural Resources Element contain goals, policies, and implementation programs related to water supply and service. Goals BE-40, NR-1, NR-2, NR-3, Policies BE-40.1 through BE-40.6, NR-1.1 through NR-1.5, NR 2.1 through NR-2.4, and NR 3.1 and NR3.3; and Programs BE-126, BE-129, BE-138, BE-145, and NR 2 through NR-12 would ensure adequate and reliable water supplies and associated infrastructure would meet current and future needs. Program NR-3 requires an update to the Urban Water Management Plan (UWMP) every five years; the next update would include this new level of anticipated development. Additionally, as required in General Plan Policy NR-3.1, new development must demonstrate that adequate water is available before project approval and to fund its fair-share costs associated with the provision of water service.

Of these goals, policies, and programs, those related to purified recycled water and ground water are being implemented and present a meaningful opportunity for the City to increase water independence. Other sources of new potable water such as potable water transfers and increased contractual amounts from the SFPUC are unlikely or too speculative to evaluate in the EIR.

The City is currently implementing a purified recycled water program and is exploring alternative sources of water to reduce the impacts of future projected water supply shortages. To date, the City has not utilized groundwater as a potable water source. The City is the early phase of evaluating groundwater as a future emergency and back-up supply. A preliminary assessment of groundwater production potential for the City found that sufficient groundwater supply may be available for the City to use as a source of back-up supply for emergency conditions. Annual aquifer recharge and discharge were estimated using the San Mateo Plain Groundwater Model to be approximately 3,000 AFY. This indicates that the portion of the subbasin underlying the City is in a state of equilibrium and that a portion of this annual recharge could be captured without inducing detrimental effects on the aquifer system. An analysis of existing wells for other entities showed an estimated well yield average of approximately 200 gallons per minute (GPM), or 300 AFY. Considering the City is in the preliminary phase of evaluating groundwater as a potential alternative water supply source, there is currently not enough information available to determine whether groundwater would serve as a viable alternative water supply source for development that would occur under the Project.

As described in section 4.19.1 Environmental Setting, the City is in the process of expanding its recycled water system as an alternative water supply to alleviate future projected multiple year shortages. Because the Project only presents an inventory of potential future housing sites and does not guarantee that any specific housing site will be developed, analysis has not yet been completed to determine whether the City's expanded recycled wastewater infrastructure would be able to serve all development sites. While it is likely that future development under the Project would be able to tie into existing or future recycled water infrastructure, recycled water systems may be cost prohibitive for some projects and may not address all project related demands for water supply.

As specific projects are proposed within the Planning Area, potential water-related impacts would be evaluated and identified, along with measures to mitigate any significant impacts, as part of the CEQA compliance process for future project-specific proposals. In adherence with SB 610, any new development project subject to CEQA that meets specific development specifications, such as residential development with over 500 dwelling units, would need to complete a Water Supply Assessment (WSA).

Implementation of the UWMP WSCP, adopted General Plan goals, policies, and implementation programs listed above related to safe and reliable water supply, and local and State existing water conservation efforts, in combination with the CEQA compliance process for future site-specific development proposals, which would evaluate water-related impacts and identify mitigation measures if necessary, including but not limited to having development projects install an extension of recycled water supply pipelines to each development project with sufficient recycled water capacity to provide for all of the project's recycled water demands while achieving the required pressure, flow, and other design criteria of recycled water system pursuant to City of Redwood City standards, confirm that the Project's potential impacts would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Wastewater Treatment

Impact UTIL-3 – Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Analysis of Impacts

The proposed Project would result in increased generation of wastewater due to the anticipated population growth that would occur under the Project. Wastewater treatment for Redwood City is provided by Silicon Valley Clean Water (formerly South Bayside System Authority (SBSA)) treatment plant, located at the northeastern end of the Redwood Shores peninsula.

As described in Chapter 3, Project Description, the Planning Area’s baseline (2020) population (residents) is 107,731 persons, and the anticipated growth associated with the Project result in a future (2040) population of 131,347 persons. If these additional 23,616 residents generated an additional 70 gallons per person per day of wastewater,⁴ the Planning Area’s growth would eventually generate approximately 1.65 million gallons per day (MGD), or 5 acre-feet (AF), of additional wastewater that would need to be conveyed via Redwood City facilities and treated via SVCW facilities. The SVCW WWTP has a permitted operating capacity of 29 MGD average dry weather flow (ADWF) and a design capacity of 71 MGD peak wet weather flow (PWWF). Pursuant to the JPA, Redwood City has maximum capacity rights of 11.4 MGD ADWF and 30.5 MGD PWWF. As discussed previously, the City generated 7,791 acre-feet (AF) of wastewater to the SVCW WWTP in 2020 or approximately 21 AF per day (6.8 MGD). The additional projected wastewater generated by growth under the Project would result in generation of an additional 5 AF of wastewater per day compared to the City’s wastewater discharges to the SVCW WWTP in 2020, representing a 23.8 percent increase in daily wastewater generation. The additional wastewater generated by future growth under the Project (1.6 MGD) in combination with current daily wastewater discharges to the SVCW WWTP (6.8 MGD) would total 8.4 MGD, which is within the City’s daily maximum capacity rights of 11.4 MGD.

The General Plan contains goals, policies, and implementation programs related to wastewater collection and treatment service. Goal BE-41, Policies BE-41.1 through BE-41.3, and Programs BE-126, BE-128, and BE-129 are intended to ensure the adequate and reliable wastewater collection and treatment facilities that meet current and future needs.

While there would likely be existing wastewater facility capacity to treat the additional demand associated with the Project, the SCVW WWTP serves other jurisdictions as well and it is possible that new or expanded facilities may be needed to meet wastewater demand. Any future expansion of existing facilities, or construction of new facilities, would be required to undergo environmental review pursuant to CEQA. Given continued implementation of General Plan goals, policies, and implementation programs listed above related to wastewater collection and treatment in combination with the CEQA compliance process for future site-specific development proposals, would have future development projects evaluate wastewater-related impacts, identify mitigation measures, and construct all capacity-enhancing improvements identified, the Project’s potential impacts would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

⁴ City of Redwood City. 2010. Redwood City New General Plan.

Mitigation Measures

None required.

Solid Waste

Impact UTIL-4 – Would the Project 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?

Analysis of Impacts

Implementation of the Project would result in an increase in residential units within the Planning Area and an associated increase in solid waste generation. In order to estimate solid waste generation associated with implementation of the project, a per-capita waste generation rate of four pounds per day per resident was used. Implementation of the proposed project is estimated to result in a population increase of approximately 23,616 residents, and the net new waste generated associated with the increase in residents would be 94,464 pounds per day or 17,239 tons per year.

One solid waste collection provider, Allied Waste Industries Incorporated, provides solid waste collection, recycling, transportation, and disposal services to Redwood City. Collected waste is transported to the South Bayside Transfer Station (SBTS), located in the City of San Carlos.

From the SBTS, solid waste is transferred to Ox Mountain Sanitary Landfill or one of eight additional landfills across the State of California for disposal. As of 2015, Ox Mountain Sanitary Landfill has a remaining capacity of 22,180,000 cubic yards (CalRecycle 2022c). Ox Hill Mountain Sanitary Landfill currently has a maximum throughput limit of 3,598 tons per day and is expected to remain operational through 2034. The increase in solid waste associated with implementation of the Project would be less than one percent of the landfill's daily capacity. As this facility does provide service to other jurisdictions, there is a possibility of exceeding the landfill's capacity.

The General Plan contains goals, policies, and implementation programs intended to reduce impacts related to solid waste disposal. Goal BE-45 requires the City to minimize the amount of solid waste it contributes to landfills. Policies BE-45.1 through BE-45.6 require compliance of exceedance of State standards for waste diversion from landfills and promote and encourage recycling and composting practices. Programs BE-135, BE-141, BE-143, and BE-144 address recycling collection for new development, waste diversion from landfills, and recycling and composting education and incentives.

The City will continue to implement the adopted General Plan goals, policies, and implementation programs related to solid waste. The City will also continue to comply with and implement its own waste reduction laws and regulations. Any proposed new or expanded solid waste facility would need to comply with adopted, mandatory environmental regulations, including CEQA. Therefore, the proposed Project would not have significant short- or long-term impacts regarding solid waste disposal in the Planning Area. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Impact UTIL-5 – Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Analysis of Impacts

Any future development associated with implementation of the proposed Project would be required to comply with all applicable federal, State, and local statutes and regulations related to solid waste management and reduction. The Infrastructure Element of the adopted General Plan contains one goal, six policies, and four implementation programs related to solid waste, as described under Impact UTIL-4. The Project does not propose goals, policies, or implementation programs that specifically address solid waste issues. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.19.6 References

CalRecycle. 2022a. Single-year Countywide Origin Detail. Web: <https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Origin/CountywideDetail> [Accessed September 14, 2022].

_____. 2022b. Jurisdiction of Origin Waste Disposal Facility Report. Web: <https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Origin/FacilitySummary> [Accessed September 14, 2022].

_____. 2022c. SWIS Facility/Site Activity Details, Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002). Web: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223> [Accessed September 8, 2022].

City of Redwood City. 2010. A New General Plan for Redwood City. Draft Environmental Impact Report. May 2010.

4.19 – Utilities and Service Systems

_____. 2018. Community Development Department Engineering & Transportation. City of Redwood City Fees and Charges. Web: <https://www.redwoodcity.org/home/showdocument?id=7645>.

_____. 2021. 2020 Urban Water Management Plan for City of Redwood City. Public Review Draft May 2021. Web: <https://www.redwoodcity.org/home/showpublisheddocument/23547/637575327526570000>.

_____. 2022. Current Utility Rates. Web: <https://www.redwoodcity.org/departments/public-works/water/rates/current-rates> [Accessed September 13, 2022].

Silicon Valley Clean Water (SVCW). 2022. Web: <https://svcw.org/> [Accessed September 14, 2022].

4.20 Wildfire

This EIR chapter describes the potential for wildfire within the Planning Area on land located in or near State Responsibility Areas (SRA) or lands classified as very high fire hazard severity zones (VHFHSZ) by the California Department of Forestry and Fire Protection (CAL FIRE). In addition, this section described the existing regulatory framework, identifies potential impacts associated with implementation of the proposed Project, and presents mitigation measures, if needed.

4.20.1 *Environmental Setting*

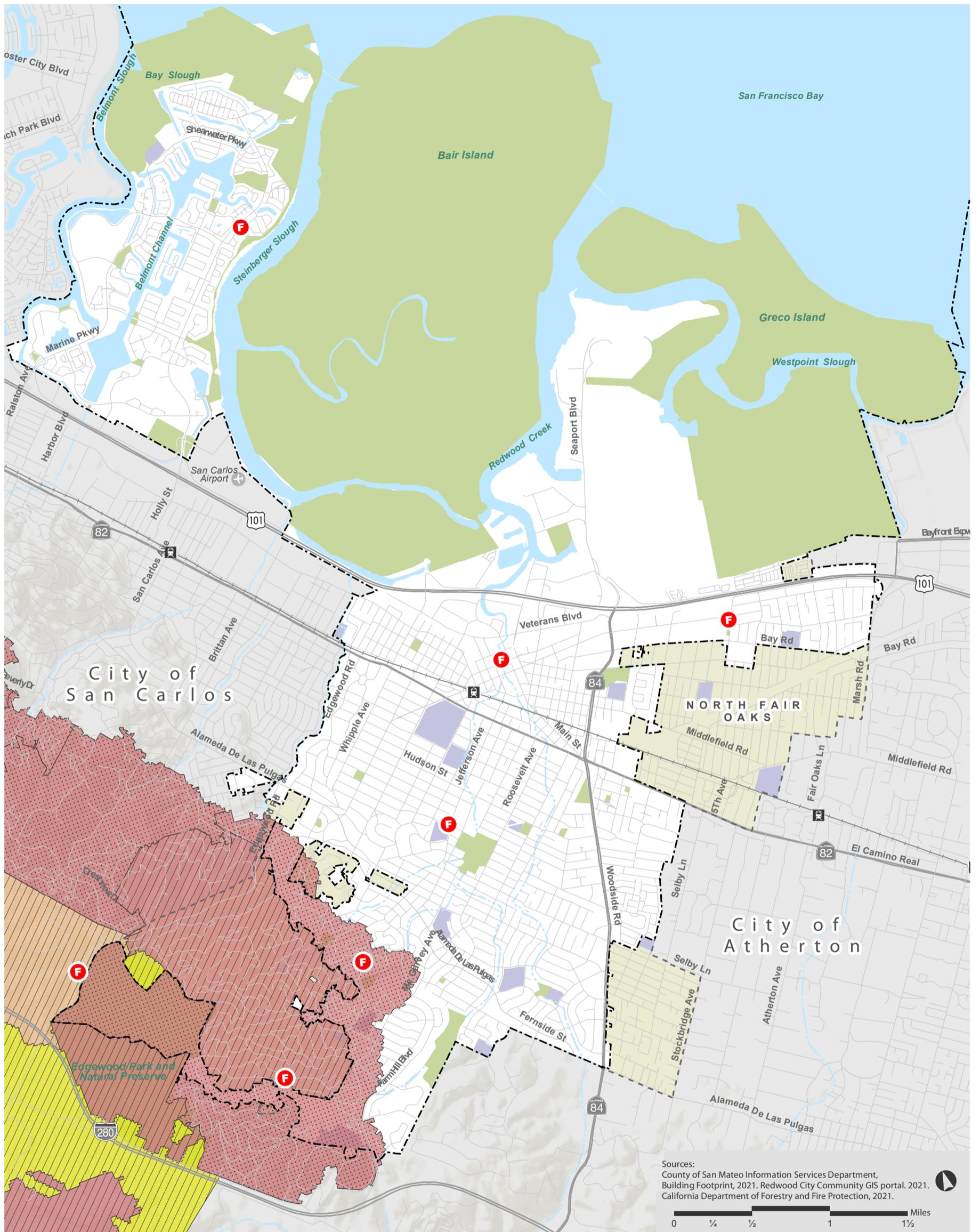
Vegetation and Climate

The Planning Area contains several extensive open space areas in the foothills. Stulsaft Park and Edgewood County Park and Natural Preserve are examples of open space parks in the upland areas of the Planning Area. Vegetation within the Planning Area's hillsides includes grasslands, coast live oak woodland, northern and central coast scrubs, chamise chaparral, and central coast riparian scrub. The Planning Area is also located in close proximity to major open space areas, including the Golden Gate National Recreation Area and preserves maintained by the Midpeninsula Open Space District.

The Planning Area has a typically Mediterranean climate characterized by warm, dry summers and mild winters (County of San Mateo 2021). Historically, July is the warmest month for the Planning Area, with average high temperatures reaching low 80s. December and January are typically the coolest months, with average lows reaching the low 40s. July 1972 and January 1949 experienced record high and low temperatures of 110 degrees Fahrenheit and 16 degrees Fahrenheit, respectively. Average precipitation for the Planning Area is approximately 20 inches per year, with the wettest month being February (4.1") and the driest being July (0"). The brush-covered hills in southwest Redwood City pose potential wildland fire hazards to the residential neighborhoods there. Long and dry summers, combined with highly flammable vegetation, can increase the possibility of wildfires.

Fire Hazard Severity Zones and Fire Responsibility Areas

The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), influence how people construct buildings and protect property to reduce risk associated with wildland fires. CAL FIRE is required to review, map, and update Fire Hazard Severity Zones for State Responsibility Areas (SRAs—areas outside of City limits where the State has responsibility for wildland fire protection) and Very High Fire Hazard Severity Zones (VHFHSZ) for Local Responsibility Areas (LRAs—areas where local government has responsibility for wildland fire protection). Figure 4.20-1 shows Fire Hazard Severity Zones and Responsibility Areas. Redwood City foothill neighborhoods located west of Alameda de las Pulgas are designated Very High Fire Hazard Severity Zone. Approximately 1,200 properties lie within the VHRHSZ in Redwood City. Land uses, roads, utilities, and essential public facilities located within the VHFHSZ and SRA zones are shown in Figure 4.20-2.



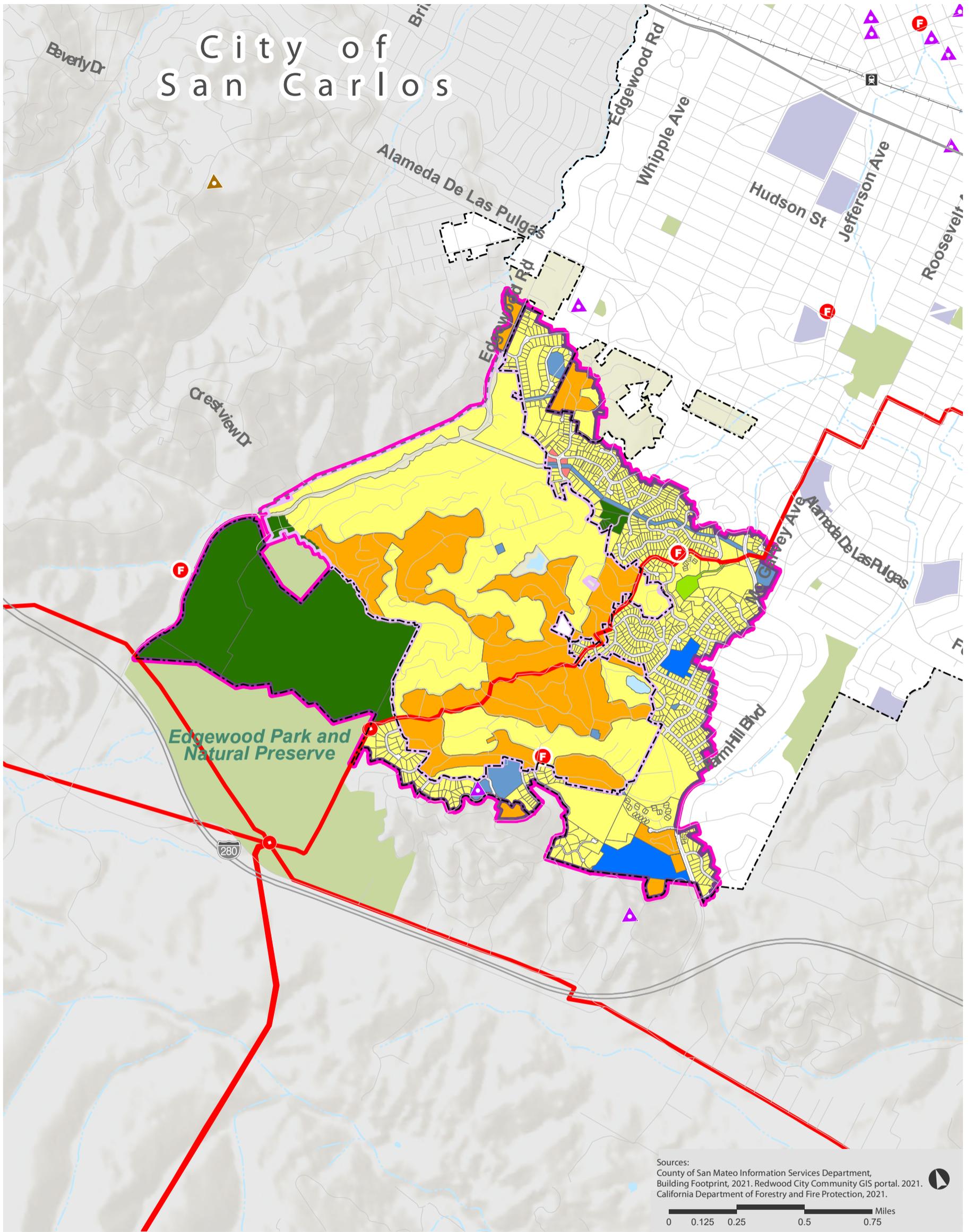
Wildfire Hazards

- Very High
- High
- Moderate
- Local Responsibility Area
- State Responsibility Area
- F Fire Stations

Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- Railway and Stations
- San Mateo County Streets
- US Highway 101
- Channel, Rivers, and Streams
- Bay, Harbor, and Sloughs
- Open Space and Parks
- Schools

Figure 4.20-1: Fire Hazard Severity Zones and Responsibility Areas



Sources:
 County of San Mateo Information Services Department, Building Footprint, 2021. Redwood City Community GIS portal. 2021. California Department of Forestry and Fire Protection, 2021.

Very High Fire Hazard Severity Zones within Redwood City and SOI

- Very High Fire Hazard Severity Zone
- State Responsibility Area
- Local Responsibility Area

At-Risk Infrastructure

- F Fire Stations
- ▲ Microwave Tower
- ▲ FM Tower
- Electrical Substation
- Transmission Lines

General Plan Land Uses At-Risk

- Residential*
- Residential - Low (7 DU/AC Max.)
- Residential - Medium (20 DU/AC Max.)
- Commercial*
- Commercial - Neighborhood (0.60 FAR Max.)
- Public/Quasi-Public*
- Schools
- Public Facility
- Park
- Open Space*
- Preservation

Base Map Features

- Redwood City Boundary
- Sphere of Influence Boundary
- Railway and Stations
- San Mateo County Streets
- US Highway 101
- Channel, Rivers, and Streams
- Bay, Harbor, and Sloughs
- Open Space and Parks
- Schools

Figure 4.20-2: Land Uses, Roads, Utilities, and Essential Public Facilities within VHFHSZ and SRA

Fire History

On June 21, 2022, a wildfire ignited immediately north of the Planning Area in the Emerald Hills neighborhood and neighboring town of Woodside (CAL FIRE 2022). This wildfire, also known as the Edgewood Incident, burned 20 acres, largely consisting of grass and brush vegetation, at Rocky Way and Eastview Way at Edgewood County Park & Natural Preserve. The San Mateo County Fire Department (CAL FIRE's San Mateo – Santa Cruz Unit) responded to the wildfire and extinguished the blaze within four days of ignition. Evacuation orders were initiated during the Edgewood Incident. The Edgewood Incident did not result in any structure damage; several firefighting personnel were injured during the fire response.

Prior to the June 2022 wildfire at Edgewood County Park & Natural Preserve, Redwood City had not experienced a significant wildfire event in decades. Several communities in the Bay Area, and broader Northern California, have a history of significant wildfire incidents. The CZU Lightning Complex fires occurred in August 2020 and consisted of several wildfires in San Mateo and Santa Cruz counties. The fires burned 86,509 acres causing significant damage to the Butano and Big Basin Redwoods state parks. Wildfire risk throughout the State is increasing due to climate change (higher temperatures and longer dry periods).

Evacuation Routes and Single Access Roads

Redwood City Police and Fire Departments implemented the San Mateo County's Zonehaven evacuation system. Zonehaven determines the most efficient and effective evacuation routes based on the emergency type and location. While evacuation routes will vary, Figure 4.20-3 identifies the roadways most frequently used for evacuations. Single access roads located within the VHFHSZ are shown in Figure 4.20-4.

4.20.2 Regulatory framework

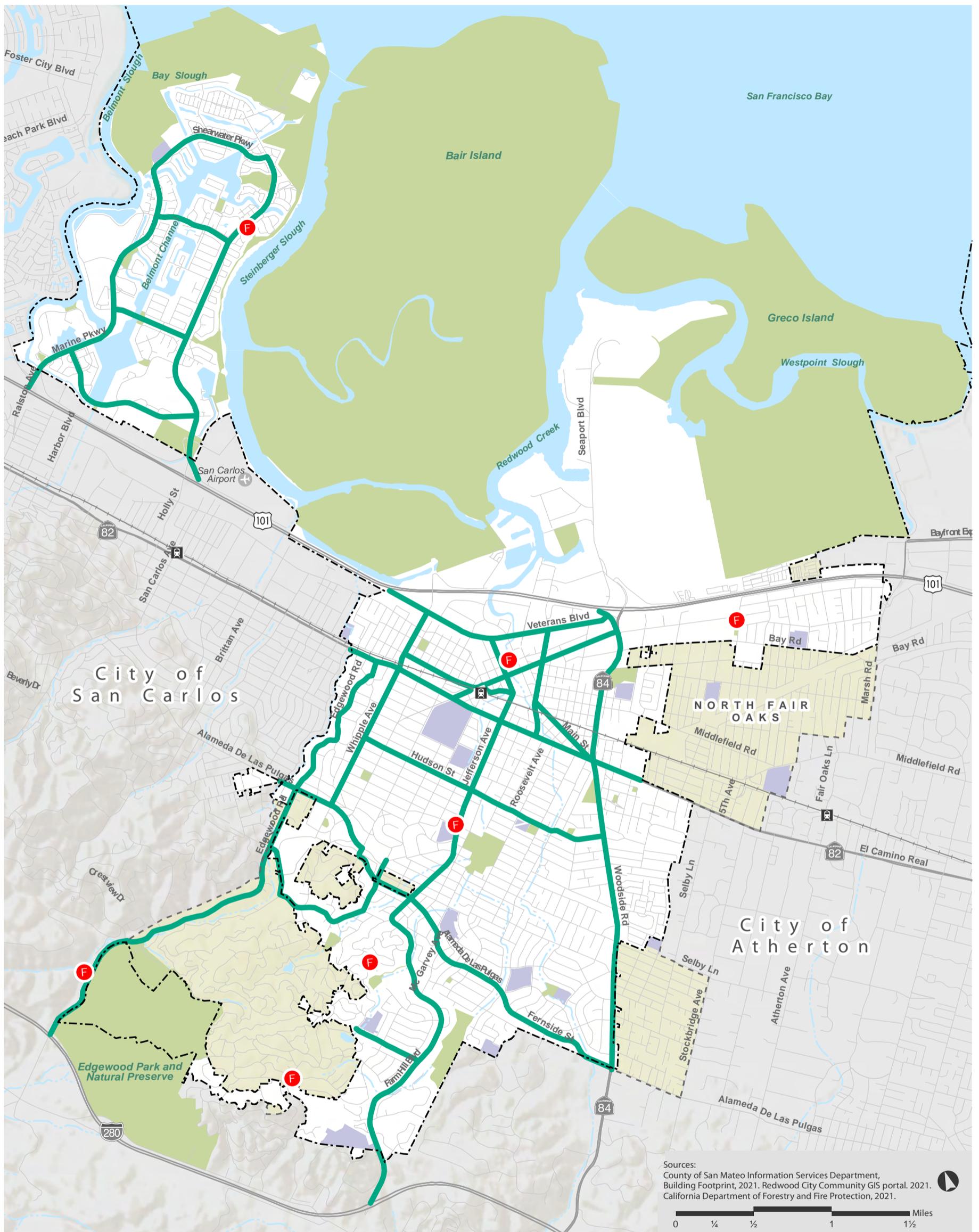
Federal

Federal Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 authorizes the Federal Emergency Management Agency (FEMA) to set mitigation planning requirements for state, local, and Indian Tribal governments as a condition of mitigation grant and disaster assistance, and requires close coordination of mitigation planning and implementation efforts between FEMA and jurisdictions.

Federal Land Assistance, Management and Enhancement Act of 2009 (National Cohesive Wildland Fire Management Strategy)

The current National fire strategy includes the Shared Stewardship Agreement, a joint state-federal initiative launched in August 2020 to reduce wildfire risks, restore watersheds, protect habitat and biological diversity and help the State meet its climate objectives. The federal government has made a commitment to match California's goals of reducing wildfire risks on 500,000 acres of forest land per year.



Evacuation Routes

-  Evacuation Routes

Base Map Features

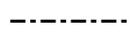
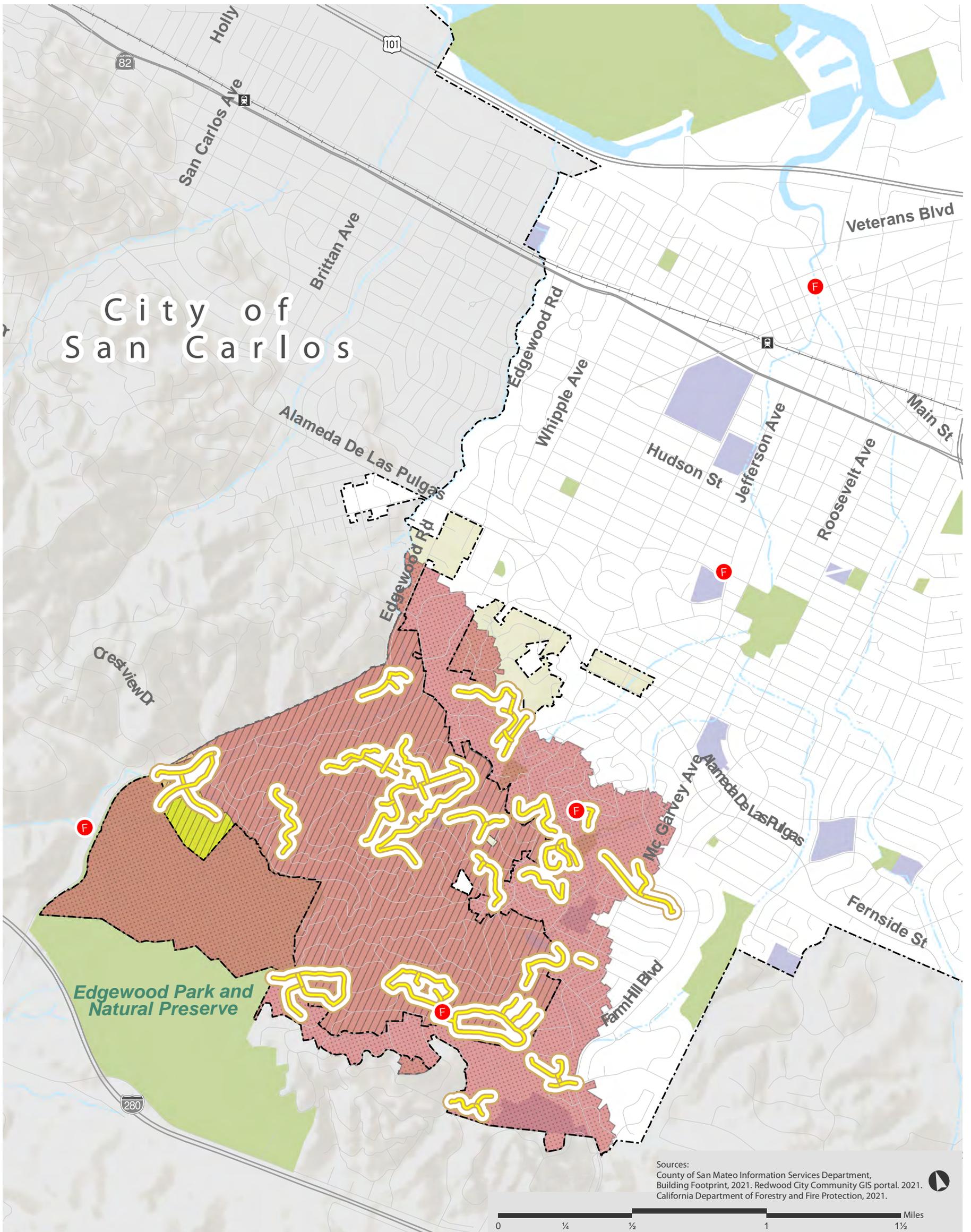
-  Redwood City Boundary
-  Sphere of Influence Boundary
-  Railway and Stations
-  San Mateo County Streets
-  US Highway 101
-  Channel, Rivers, and Streams
-  Bay, Harbor, and Sloughs
-  Open Space and Parks
-  Schools

Figure 4.20-3: Evacuation Routes



Sources:
 County of San Mateo Information Services Department,
 Building Footprint, 2021. Redwood City Community GIS portal. 2021.
 California Department of Forestry and Fire Protection, 2021.

- Wildfire Hazards**
- Very High
 - High
 - Moderate
 - Local Responsibility Area
 - State Responsibility Area
 - F Fire Stations
 - Single Access Road

- Base Map Features**
- Redwood City Boundary
 - Sphere of Influence Boundary
 - Railway and Stations
 - San Mateo County Streets
 - US Highway 101
 - Channel, Rivers, and Streams
 - Bay, Harbor, and Sloughs
 - Open Space and Parks
 - Schools

Figure 4.20-4: Single Access Roads in Wildfire Hazard Areas

Healthy Forest Restoration Act of 2003

This Act calls for preparation of Community Wildfire Protection Plans (CWPP) as planning and funding prioritization tools to create incentives for communities to engage in comprehensive fire hazard planning and to help define and prioritize local needs.

StateCalifornia Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) protects life and property through fire prevention engineering programs, law and code enforcement and education. CAL FIRE identifies areas within Local Responsibility Areas and recommends fire hazard severity zones; CAL FIRE also designates fire hazard severity zones for areas within State Responsibility Areas.

Office of the State Fire Marshal (OSFM)

The Office of the State Fire Marshal (OSFM) protects life and property through fire prevention engineering programs, law and code enforcement and education, and management and protection of natural resources in the state, including protection of watershed and wildlife, as well as renewal of timber resources. The OSFM provides enforces fire-related laws in state-owned or operated buildings, investigates arson fires, licenses fire protection system inspectors and service personnel, and other regulatory and inspection duties.

2018 California Strategic Fire Plan

The Plan provides broad direction to CAL FIRE for implementing fire prevention, natural resource management, and fire suppression programs, focusing on activities that improve availability and use of hazard and risk assessment information and increase collaboration with all stakeholders while supporting local planning. The Plan also seeks to foster a shared vision among communities and multiple fire protection jurisdictions while increasing awareness of actions to improve fire resistance of man-made assets at risk. Other Plan components include preventing wildland fire threats to ecosystem health through natural resource management and implementing post-fire protection and recovery assessments and actions.

California Climate Adaptation Strategy (2021)

The California Climate Adaptation Strategy is formulated to strengthen protections for climate vulnerable communities. Part of this Strategy relates to wildfire risk and prevention, such as improving and refining quantitative wildfire risk assessments across California to identify the most wildfire vulnerable communities and populations; supporting wildfire prone communities by expanding the Regional Forest and Fire Capacity Program and increasing local and regional government capacity to build and maintain projects to improve forest health and prevent wildfire; and reducing health impacts of wildfire smoke (including improving wildfire smoke guidance for schools, children, and other vulnerable populations). The Strategy also identifies the need to reduce risk from energy infrastructure-related ignitions that can lead to wildfire. In addition, the Strategy promotes “climate smart” forest management – such as reintroducing prescribed fire

onto landscapes – as a means to reduce the threat of wildfire; supports increase in the pace and scale of wildfire resilience and forest health projects; and calls for reducing wildfire risks through increased use of fuel breaks and fuels reduction and expediting the permitting of wildfire resilience projects using exemptions or the California Vegetation Treatment program.

Wildfire and Forest Resilience Action Plan (2021)

The Wildfire and Forest Resilience Action Plan promotes actions to restore the health and resilience of California forests, grasslands and natural places; improve the fire safety of our communities; and sustain the economic vitality of rural forested areas through a variety of activities. The Plan calls for increasing forest management efforts to meet the state and federal 2025 target of restoring one million acres of restoration annually. In addition, the Plan states that the use of prescribed fire statewide would be expanded significantly, including fuel breaks and reforestation of areas burned by catastrophic fire. The Plan calls for support of communities, neighborhoods, and residents in increasing their resilience to wildfire; utilizing a statewide network of regional plans to ensure coordinated, comprehensive action across the state; and developing a comprehensive program to assist private forest landowners. In addition, the Plan would improve and align forest management regulations and spur innovation and create opportunities for the use of forest materials that store carbon, reduce emissions, and contribute to sustainable local economies.

AB 38 (2019) California Wildfire Mitigation Financial Assistance Program (Government Code §8654.7 and §8654.10; Public Resources Code §8389.5)

Established a comprehensive wildfire mitigation financial assistance program to encourage cost-effective structure hardening and retrofitting to create fire-resistant homes, businesses, and public buildings. The bill required the State Fire Marshal, in consultation with specified State officials, to identify building retrofits and structure hardening measures, and CAL FIRE to identify defensible space, vegetation management, and fuel modification activities, that are eligible for financial assistance under the program. The bill specifies the types of designated wildfire hazard areas eligible for funding under the program.

AB 1823 (Committee on Natural Resources, 2019) Fire Risk Reduction Communities (Public Resources Code §4290.1)

This legislation requires that, on or before July 1, 2022, the State Board of Forestry and Fire Protection must develop criteria for and maintain a list of local agencies considered to be a “Fire Risk Reduction Community” located in the state responsibility area (SRA) or very high fire hazard severity zone (VHFHSZ), identified pursuant to GC§51178, that meet best practices for local fire planning. Criteria that must be used to develop the Fire Risk Reduction Community list include recently developed or updated community wildfire protection plans (CWPP), adoption of the board’s recommendations to improve the Safety Element, participation in Fire Adapted Communities and Firewise USA programs, and compliance with the Board’s minimum fire safety standards. For example, any new road in the SRA will need to comply with State regulations governing access. Standards extend to road steepness, curvature and width.

California Fire Code (California Code of Regulations, Title 24, Part 9)

The City of Redwood City has adopted the 2019 California Fire Code, with amendments to address specific local conditions and needs. These provisions include construction standards and fire hydrant requirements, road widths and configurations designed to accommodate the passage of fire trucks and engines, and requirements for minimum fire flow rates for water mains, specifications for exterior materials, and construction methods for structures located in the wildland-urban interface (WUI). These regulations pertain to any new building located within a Local Agency “Very High Fire Hazard Severity Zone” or within a State Responsible “Moderate,” “High,” or “Very High Fire Hazard Severity Zone.”

California Public Resources Code 4291 (PRC 4291)

PRC 4291 requires homeowners to address wildland fire hazards through creation of defensible space and other building construction mitigation measures.

California Code of Regulations, Title 19

Title 19, chapters one through six of the California Code of Regulations (CCR), establishes regulations related to emergency response and preparedness under the California Governor’s Office of Emergency Management (Cal OES).

California Health and Safety Code (Sections 13000 et seq.)

This code establishes State fire regulations, including regulations for building standards (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.

Regional/LocalSan Mateo County Multijurisdictional Local Hazard Mitigation Plan

The San Mateo County Multijurisdictional Local Hazard Mitigation Plan (SMC MLHMP) (2021) is the latest update to a hazard mitigation plan for San Mateo County. In preparing it, San Mateo County partnered with local cities and special purpose districts. One of the benefits of multijurisdictional planning is the ability to pool resources and eliminate redundant activities within a planning area that has uniform risk exposure and vulnerabilities. The Federal Emergency Management Agency (FEMA) encourages multijurisdictional planning under its guidance for the Federal Disaster Mitigation Act (DMA) of 2000. The plan helps guide and coordinate mitigation activities throughout San Mateo County. All SMC MLHMP participating jurisdictions compiled an inventory and analysis of existing authorities and capabilities called a “capability assessment.” A capability assessment creates an inventory of a jurisdiction’s mission, programs, and policies, and evaluates its capacity to carry them out. Redwood City is a participating jurisdiction in the SMC MLHMP.

The planning effort identified risks posed by hazards and developed strategies to reduce the impact of hazard events on people and property in San Mateo County. The plan was also developed to meet the following objectives:

- Meet or exceed program requirements specified under the DMA.
- Enable San Mateo County to continue using federal grant funding to reduce risk through mitigation.
- Meet the needs of San Mateo County as well as state and federal requirements.
- Create a risk assessment that focuses on San Mateo County hazards of concern.
- Coordinate existing plans and programs so that high-priority initiatives and projects to mitigate possible impacts of a disaster are funded and implemented.
- Establish an “equity lens” approach to this plan update process as an option for all planning partners (see Section 2.2.3 for a description of equity and the equity lens).

San Mateo County - San Cruz County Community Wildfire Protection Plan

The San Mateo County – Santa Cruz County Community Wildfire Protection Plan (CWPP) (2018) identifies risks and hazards associated with wildland fires in the wildland urban interface (WUI) areas of San Mateo and Santa Cruz Counties. The CWPP identifies recommendations aimed at preventing and reducing both infrastructure and ecosystem damage associated with wildland fires. The CWPP also documents suggested actions intended to reduce the risk to people, property and the environment. Fuel reduction projects identified in an approved CWPP receive priority for federal funds. The CWPP was developed in accordance with the Health Forests Restoration Act.

FIRE SAFE San Mateo County

FIRE SAFE San Mateo County is San Mateo County’s Fire Safe Council, established as a sub-group of the California Fire Safe Council. Its goals are to reduce hazardous vegetation, create defensible space around structures, and educate the public about wildfire fire hazards, fire behavior, and fuel reduction through the guidance of local agencies and public/private partnerships.

San Mateo County Fire Code

San Mateo County has adopted the California Fire Code (CFC) (2016), with local amendments, as the San Mateo County Fire Code. As such, the San Mateo County Fire Code contains provisions include to but not limited to those related to fire permits, fire apparatus access roads, key boxes, fire protection water supplies, fuel fired appliances, automatic sprinkler systems, fire alarm and detection systems, fire department equipment and hydrant connections, and hazardous, flammable materials. Per the San Mateo County Fire Codes and Standards, buildings and structures located in unincorporated lands designated by CAL FIRE as State Responsibility Area (SRA), including Moderate, High, and Very High FHSZ, must comply with hazard vegetation and fuel management requirements. Accordingly, buildings and structures in the unincorporated areas in the Planning Area must comply with the San Mateo County Fire Code defensible space requirements.

The San Mateo Operational Area Emergency Services Organization (Emergency Services Council)

The San Mateo Operational Area Emergency Services Council is comprised of all local governments within the geographic area of San Mateo County, special districts, unincorporated areas, and participating non-governmental entities. The purpose of the organization is to operate pursuant to Presidential Directive 5, the National Response Framework, National Incident Management System (NIMS), Presidential Directive 8, the National Preparedness Goal and California's Standardized Emergency Management System (SEMS) and local adopted Emergency Operations Plans and Annexes. The Emergency Services Council's collective goals are: to provide coordinated plans for the protection of persons and property based on the five phases of emergency management (prevention, protection, response, recovery and mitigation); support existing regional Public Information and Notification systems to include SMC Alert and TENS, as well as other Situational Awareness Tools; and to continue to support the regional hazardous materials emergency response program.

County of San Mateo Emergency Operations Plan

The County of San Mateo Emergency Operations Plan (EOP) (2015) establishes policies and procedures and assigns responsibilities to ensure the effective management of emergency operations within the San Mateo County Operational Area (SMOA). It provides information on the county emergency management structure of how and when the Emergency Operations Center (EOC) staff is activated. Redwood City is a participant in the (EOP). The overall objective of emergency management is to ensure the effective coordination of response forces and resources in preparing for and responding to situations associated with natural disasters, technological incidents and national security emergencies. To carry out its responsibilities, the County, in coordination with participant jurisdictions, would accomplish the following objectives during an emergency/disaster:

- Maintain overall coordination/support of emergency response and recovery operations, including on scene incident management as required.
- Coordinate and liaise with appropriate federal, state and other local government agencies, as well as applicable segments of private sector entities and volunteer agencies.
- Establish priorities and resolve conflicting demands for support.
- Prepare and disseminate emergency public information to alert, warn, and inform the public.
- Disseminate damage information and other essential data.

Redwood City General Plan

The 2010 Redwood City General Plan addresses hazards due to wildfire conditions, including post-fire risks such as landslides and debris flows. Applicable adopted General Plan policies and implementation programs include:

Public Safety Element

- Policy PS-6.1: Identify structural types, land uses, and sites that are highly sensitive to earthquake activity and other geological hazards; seek to abate or modify them to achieve acceptable levels of risk.
- Policy PS-6.3: Work to ensure that structures and the public in Redwood City are exposed to reduced risks from seismic and geological events.
- Policy PS-9.2: Identify alternative water sources for fire-fighting use during a disaster.
- Policy PS-9.3: Conduct ongoing public outreach regarding procedures and plans to be followed in the event of an emergency.
- Policy PS-11.2: Work with the Fire Department to determine and meet community needs for fire protection and related emergency services.
- Program PS-24: Geotechnical Analysis. Require a geotechnical analysis for construction in areas with potential geological hazards; implement appropriate mitigation recommendations.
- Program PS-26: Geological Hazard Mapping. Use appropriate geological hazard mapping techniques to evaluate potential seismic and slope stability hazards associated with proposed new development.
- Program PS-32: Emergency Operations Plan. Review and update, as needed, the City's emergency operations plan in coordination with the County's natural disaster preparedness plan to address disasters such as earthquakes, flooding, dam or levee failure, hazardous materials spills, epidemics, fires, extreme weather, major transportation accidents, and terrorism.
- Program PS-33: Emergency Vehicle Access and Secure Evacuation Routes. Require new development to provide adequate access for emergency vehicles, particularly fire-fighting equipment, as well as secure evacuation routes for inhabitants.
- Program PS-34: Emergency Aid Standing Agreements. Maintain standing agreements with other public and private agencies to furnish specified aid upon demand in the event of a major emergency, as appropriate.
- Program PS-35: Emergency Response Preparedness Programs. Maintain and update, as appropriate, the City's emergency response preparedness programs, plans, and procedures to protect the health and safety of the community, and to provide effective and quick recovery of affected areas in the event of a major disaster. In particular, incorporate into such plans and programs strategies to provide continuous access to and from the Police Station via the Redwood Creek undercrossing of U.S. 101.
- Program PS-36: Community Emergency Response Team. Maintain funding for programs such as CERT (Community Emergency Response Team) to conduct public education of emergency preparedness for all types of emergencies.
- Program PS-39: Adequate Police and Fire Departments Service Requirements. Provide funding for the Police Department and Fire Department to maintain sufficient personnel and the highest level of technology and equipment to meet service requirements of new growth and other specific needs, as appropriate.
- Program PS-42: Emergency Evacuation Routes and Plans. Prepare and regularly update emergency evacuation routes and plans.

- Program PS-44: Local Hazard Mitigation Plan. Continue to annually review and, as necessary, update the Local Hazard Mitigation Plan. Review the Hazard Mitigation Plan for consistency with the General Plan.

Redwood City Fire Code and Residential Code

Redwood City has adopted the California Fire Code (CFC) (2019), with local modifications, as Chapter 12, Article II (Redwood City Fire Code) of its Municipal Code. Through the Redwood City Fire Code, the City has adopted and designated the most recent Very High Fire Hazard Severity Zones map as recommended by the Director of the California Department of Forestry and Fire Protection (CAL FIRE). Per the Redwood City Fire Code, buildings and structures in the City must comply with provisions as stipulated by the City of Redwood City Building Official, the California Building Code Chapter 7A, or the California Residential Code Section R337. The City has adopted local Fire Code amendments related to: automatic sprinkler systems in buildings and structures; fire alarms; storage of hazardous, flammable fluids and petroleum gas; fire main and hydrant specifications; and design and installation standards maintained by the local fire code official, which include but are not limited to standards for address posting, special suppression systems, fire apparatus turnarounds, turnouts, Knox key safe installations, emergency responder radio coverage systems, and fire sprinkler systems.

Through its adoption of the CFC, the Redwood City Fire Code also requires buildings and structures in VHFHSZ to maintain the required hazardous vegetation and fuel management (CFC Section 4906 Hazardous Vegetation and Fuel Management).

In addition, the Redwood City Residential Code requires fire retardant roofing for residential buildings (§R905.1.3). Roof coverings must be either Class A (effective against severe fire exposure) or Class B (effective against moderate fire exposure) roof assemblies.

4.20.3 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, implementation of the Project would have a significant impact related to wildfire if it would:

- (a) Substantially impair an adopted emergency response plan or emergency evacuation plan;
- (b) 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;
- (c) 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
- (d) 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.

4.20.4 Proposed Policies and Implementation Programs to Avoid or Reduce Significant Impacts

This section contains the proposed revised and new policies and implementation programs from the Public Safety Element Update that would avoid or reduce significant wildfire impacts. Proposed new policies and implementation programs are shown in underline, while revised policies and implementation programs are shown in strikeout. The Project does not otherwise contain policies or implementation programs that specifically address wildfire impacts.

Policy PS-13.1: Continue to plan for new construction and redevelopment that decreases the likelihood of fire and decreases the impacts of fire damage.

Program PS-13.1: New and Re-development Siting Requirements

- Continue to require new development and re-development to provide adequate defensible space to minimize the risk of structural damage associated with wildland fires.
- Require new development be in areas with adequate water supply and water supply infrastructure, where possible.
- Require new development be in areas with adequate fire fighting protection.
- Continue to implement the California Building and California Fire Codes.
- Require new essential public facilities be sited outside of the Very High Fire Hazard Severity Zone, when feasible.
- Require new development located in the Very High Fire Hazard Severity Zone to:
 - Prepare fire protection plans
 - Have more than one ingress/egress point

Policy PS-13.2: Continue to allow structures and infrastructure located in the Very High Fire Hazard Severity Zone (VHFSZ) to be rebuilt or redeveloped after a large fire, in accordance with the Building and Fire Codes in place at the time of the rebuilding.

Program PS-13.2: Re-development Policy. Periodically review and amend, as appropriate, the City's policy allowing structures to be rebuilt in Very High Fire Hazard Severity Zone after a fire.

Policy PS-13.3: Ensure that local infrastructure (including water supply and emergency services have adequate capacity to support wildfire emergencies.

Program PS-13.3: Zoning Code, Building Code Updates.

- Avoid, if possible, or minimize new residential development in the Very High Fire Hazard Severity Zone.
- Update site design and maintenance standards to account for new and emerging technologies and State fire standards.
- Require residential and nonresidential structures to have street numbers (and street name, as appropriate) visible from public and private roadways and alleys.

Policy PS-13.4: Continue to support and implement fuel management programs.

Program PS-13.4: Statewide Fire Protection Standards. Continue to implement Statewide standards for fire protection for new development and re-development, including evacuation route design and standards. Require all new development and re-development comply with the latest building and fire codes.

Policy PS-13.5: Periodically reevaluate land use policy allowing for new development in the Very High Fire Hazard Severity Zone.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

- Identify development that does not comply with current fire safety standards, in terms of road standards and vegetative hazards, establish and implement a mitigation plan to remedy the noncompliance, as appropriate.
- Require new development and re-development to incorporate fire safe design by requiring property owners to submit plans showing ingress/egress, evacuation routes, emergency vehicle access, visible home addressing and signage, and fuel modification/fire-retardant zones. This may include but not be limited to defensible space, drought and fire-resistant landscaping.

Program PS-13.6: Monitor Future Fire Risk and Assess Service. Periodically review trends and climate change projections affecting future fire risk and fire risk reduction capabilities to ensure that fire services remain adequate; modify service provision and develop mitigation measures, as necessary. Identify development that does not meet local fire code; look to develop mitigation programs.

Program PS-13.8: Clean Air Quality Resources. Consider programs to provide resources and safe spaces to residents to reduce wildfire smoke exposure, such as establishing clean air shelters.

Program PS-13.9: Hazard Reduction Projects. Maintain or require the maintenance of fire hazard reduction projects, including but not limited to community fire breaks, private and public road clearance.

Program PS-13.10: Fire Flow Capacity. Continue to implement improvements identified in the Urban Water Management Plan to achieve a minimum fire flow of 1,000 gallons of

water per minute for one- and two-family dwellings, as specified in Section 507.1.1 of the Municipal Code.

Program PS-13.11: Establish Firebreak Areas. Establish and maintain firebreak areas to restrict the spread of wildfire.

Program PS-13.12: Emergency Preparedness. Continue to provide public education regarding fire prevention and/or preparedness including but not limited to importance of providing and maintaining defensible space/vegetation clearance and personal evacuation plans, emergency preparedness kits/supplies, City or County fire prevention and response services.

Program PS-32: Emergency Operations Plan. Review and update, as needed, the City's emergency operations plan in coordination with the County's Local Hazard Mitigation Plan ~~natural disaster preparedness plan~~ to address disasters such as earthquakes, flooding, dam or levee failure, hazardous materials spills, epidemics, fires, extreme weather, major transportation accidents, and terrorism.

Program PS-39: Adequate Police and Fire Departments Service Requirements. Provide funding for the Police Department and Fire Department to maintain sufficient personnel and the highest level of training, technology and equipment to meet service requirements of new growth and other specific needs, as appropriate.

Program PS-44: Local Hazard Mitigation Plan. Continue to actively coordinate with San Mateo County on the regular update of the Multi-Jurisdictional Local Hazard Mitigation Plan and the implementation of the City's Action Plan it commits to in the Local Hazard Mitigation Plan, Volume II. ~~annually review and, as necessary, update the Local Hazard Mitigation Plan.~~ Review the Hazard Mitigation Plan in conjunction with the City's for consistency with the General Plan, Climate Action Plan, future Climate Adaptation Plan, and other resiliency planning and emergency response planning documents to ensure consistency of approach across all documents.

Program PS-60: Inter-Agency Emergency Preparedness/Mutual Aid. Continue to work with other local cities, San Mateo County, regional organizations, and State agencies to ensure emergency preparedness and fire suppression services are provided in an efficient and coordinated manner. Continue to participate in mutual aid multi-agency agreements.

4.20.5 Impacts and Mitigation Measures

This section describes potential impacts related wildfires which could result from implementation of the Project and recommends mitigation measures, as needed, to reduce significant impacts.

Emergency Response Plans

Impact WILD-1 – Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

Analysis of Impacts

All major public streets in Redwood City serve as principal evacuation routes, including Edgewood Drive, Whipple Avenue, Jefferson Avenue, Woodside Drive, Alameda de las Pulgas, Fernside Street, El Camino Real, Veterans Boulevard, Hudson Street, Farm Hill Boulevard, Marine Parkway, and Shearwater Parkway (Figure 4.20-3). These principal roads are all well-maintained and would function as evacuation routes during a disaster. In any disaster warranting evacuation, the exact emergency routes used would depend on a number of variables, including the type, scope, and location of the incident.

The City also participates in the San Mateo County Emergency Services Council and County of San Mateo Emergency Operations Plan (EOP). The EOP is reviewed annually and approved by the federal government every five years. The EOP establishes the emergency organization (i.e., the Emergency Services Council), assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts for the various emergency staff utilizing the State's Standardized Emergency Management System and National Incident Management. New construction within the VHRHSZ is required to comply with California Building Code Chapter 7A, including requirements for fire retardant or ignition resistant construction materials at roofs, eaves, vents, exterior walls, exterior windows and doors, decks, and areas below decks. California Government Code §51182 also requires buildings within these areas to provide defensible space. Defensible space must be maintained up to 100 feet (or the property line, whichever is less) from the building. The Redwood City Building Code also requires fire retardant roofing (§R905.1.3) and fire sprinklers (§903.2).

The 2010 General Plan contains adopted policies and implementation programs that would ensure adequate emergency services related to wildfire response in the Planning Area. These policies and programs include Policy PS-9.2, Policy PS-9.3, Program PS-33, Program PS-34, Program PS-35, Program PS-36, and Program PS-42. See section 4.20.2 above for the full text of these adopted policies and implementation programs.

The Public Safety Element Update component of the Project proposes new and revised policies and implementation programs that would continue and improve protection of residents and properties through implementation of emergency response plans and requirements for developments to plan for evacuation scenarios and ensure adequate emergency access. The applicable policies and implementation programs from the Public Safety Element Update related to emergency response or evacuation plans are provided below. See Section 4.20.4 for the full text of each policy or implementation program.

Program PS-13.1: New and Re-development Siting Requirements

Program PS-13.4: Statewide Fire Protection Standards.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.12: Emergency Preparedness

[revised] Program PS-32: Emergency Operations Plan

[revised] Program PS-44: Local Hazard Mitigation Plan

Program PS-60: Inter-Agency Emergency Preparedness/Mutual Aid

As discussed in EIR Chapter 3, Project Description, implementation of the Housing Element Update would result in a net increase of 11,277 dwelling units and 23,616 residents within the Planning Area by 2040 (of which 7,003 dwelling units would be facilitated by the Housing Element Update during the 6th Housing Cycle planning period, including potential ADUs, Missing Middle Housing such as duplexes, triplexes, and fourplexes, and SB 9 Units – urban duplexes and urban lot splits), with some of the units located in the VHFHSZ. The development of the residential units included in the Housing Element Update would also involve construction activities that could potentially interfere with traffic flow. In addition, new housing would generate additional population in the Planning Area, which in turn could delay evacuation times due to increased traffic volumes.

While it is possible that there may be temporary and limited circulation changes that may be required during discrete periods of time associated with specific construction projects, these changes would be temporary and would still allow for evacuation in the event of an emergency. Emergency access would be maintained to all properties within the project limits and the surrounding vicinity during construction. The Housing Element Update identifies the City's foothills as being suitable predominantly for small-scale residential development (e.g., ADUs, duplexes, triplexes, and fourplexes), while potential large-scale residential development would be clustered in and around the City's downtown area and major roadways (see Housing Element Update Figure 1: Housing Sites to Meet the RHNA). The increase in population in the VHFHSZ in the City's foothills from the addition of small-scale residential projects would not likely substantially increase evacuation times because the anticipated increase in population would be relatively small compared to the existing population of the foothills, which is largely built out. Further, the proposed Public Safety Element Update policies and implementation programs would ensure adequate emergency response and evacuation procedures are planned for and maintained on a development-by-development basis and Planning Area-wide. The Redwood City Fire Department, CAL FIRE, the Redwood City Police Department, and the San Mateo County Sheriff's Office would continue to engage in mutual aid for emergency response and evacuation procedures during wildfire incidents. Potential adverse impacts due to implementation of the proposed Project on emergency access and evacuation would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Slope, Prevailing Winds, and Other Factors

Impact WILD-2 – Would the Project result in impacts due to slope, prevailing winds, and other factors, exacerbating wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Analysis of Impacts

Generally, the greatest potential for wildfire hazards occurs in areas adjacent to abundant natural vegetation. The foothill neighborhoods west of Alameda de las Pulgas are designated a Very High Fire Hazard Severity Zone (VHFSZ) (Figure 4.20-1). Developments within this zone are subject to the City or County defensible space and fuel modification requirements (see section 4.20.2 Regulatory Framework, above). The Redwood City Fire Department provides firefighting services to the Local Responsibility Area (LRA), and the Redwood City Fire Department's Fire Prevention Bureau reviews and approves development plans for fire safety. The San Mateo County Fire Department provides firefighting services to the State Responsibility Area (SRA), roughly encompassing unincorporated Emerald Hills¹ and part of Edgewood County Park and Natural Preserve (Edgewood County Park) within the Planning Area.

Edgewood County Park and Natural Preserve (Edgewood County Park) is the largest open space area in Redwood City. Edgewood County Park and Natural Preserve is located in the southwestern portion of Redwood City in the VHFSZ and is owned and operated by San Mateo County. The San Mateo County Parks Department operates a Wildfire Fuel Management Program in its parks to reduce wildfire risks. As part of its 2021-2026 Wildfire Fuel Management Program Projects, the San Mateo County Parks Department is carrying out a project to create and maintain a shaded fuel break along the eastern and southeastern boundary of the Park, which borders the Planning Area (San Mateo County Parks Department 2022). The San Mateo County Fire Department, which contracts with and is under the authority of CAL FIRE as the CAL FIRE San Mateo-Santa Cruz Unit (San Mateo County Fire Department 2022a), has responsibility for wildfire response in unincorporated County lands, including Edgewood County Park (San Mateo County Fire Department 2022b).

The 2010 General Plan contains adopted policies and implementation programs related to fire prevention and response in the Planning Area. These policies and programs include Policy PS-9.2, Policy PS-9.3, Policy PS-11.2, Program PS-33, Program PS-34, Program PS-35, Program PS-36, and Program PS-42. See section 4.20.2 above for the full text of these adopted policies and implementation programs.

The applicable policies and implementation programs from the Public Safety Element Update related to fire prevention and response are provided below. See Section 4.20.4 for the full text of each policy or implementation program.

Policy PS-13.1: Continue to plan for new construction and redevelopment that decreases the likelihood of fire and decreases the impacts of fire damage.

Program PS-13.1: New and Re-development Siting Requirements

¹ It should be noted that while Emerald Hills is designated State Responsibility Area (SRA) and CAL FIRE provided firefighting services in the SRA, a portion of Emerald Hills falls under the jurisdiction of the Woodside Fire Protection District (San Mateo County Fire Department 2022b).

Policy PS-13.2: Continue to allow structures and infrastructure located in the Very High Fire Hazard Severity Zone (VHFSZ) to be rebuilt or redeveloped after a large fire, in accordance with the Building and Fire Codes in place at the time of the rebuilding.

Program PS-13.2: Re-development Policy.

Policy PS-13.3: Ensure that local infrastructure (including water supply and emergency services have adequate capacity to support wildfire emergencies.

Program PS-13.3: Zoning Code, Building Code Updates.

Policy PS-13.4: Continue to support and implement fuel management programs

Program PS-13.4: Statewide Fire Protection Standards

Policy PS-13.5: Periodically reevaluate land use policy allowing for new development in the Very High Fire Hazard Severity Zone.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.6: Monitor Future Fire Risk and Assess Service

Program PS-13.8: Clean Air Quality Resources

Program PS-13.9: Hazard Reduction Projects

Program PS-13.10: Fire Flow Capacity

Program PS-13.11: Establish Firebreak Areas

Program PS-13.12: Emergency Preparedness

[revised] Program PS-32: Emergency Operations Plan

[revised] Program PS-39: Adequate Police and Fire Departments Service Requirements

[revised] Program PS-44: Local Hazard Mitigation Plan

Program PS-60: Inter-Agency Emergency Preparedness/Mutual Aid

The proposed Project would not change the existing land use designation of Edgewood County Park, which precludes any development within the park's boundaries. Public Safety Element Update Programs PS-13.9 and PS-13.11 indicate the City would carry out fuel reduction projects in areas under its jurisdiction. As mentioned previously, the San Mateo County Parks Department is establishing fuel breaks at Edgewood County Park. These new fuel breaks would benefit fire protection efforts in the Planning Area. In addition, the proposed Public Safety Element Update policies and implementation programs specifically address the location, design, and protection of new development in VHFHSZ which includes the foothills within the Planning Area. Compliance with these policies and implementation programs, the City's Municipal Code, including Building

Code, requirements for development and re-development, and the City Fire Department's development review process for new development, will minimize the potential for impacts related to wildfires and subsequent downhill or downstream impacts, including exposure to wildfire related air pollutants.

Therefore, the Project would not result in impacts due to slope, prevailing winds, and other factors, exacerbating wildfire risks, and thereby exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. With continued implementation of City Municipal Code requirements related to fire protection and the implementation of the proposed policies and implementation programs of the Public Safety Element Update, impacts related to slope, prevailing winds, and other factors would be ***less than significant***.

Level of Significance Before Mitigations

Less than Significant Impact

Mitigation Measures

None required.

Installation or Maintenance of Infrastructure

Impact WILD-3 – Would the Project require the installation or maintenance of associated infrastructure such as roads, fuel breaks, emergency water resources, powerlines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Analysis of Impacts

As previously described, the foothill neighborhoods of the Planning Area located west of Alameda de las Pulgas are designated VHFHSZ. Developments within this zone are subject to the City or County defensible space and fuel modification requirements. The Redwood City Fire Department provides firefighting services to the Local Responsibility Area (LRA), and the Redwood City Fire Department's Fire Prevention Bureau reviews and approves development plans for fire safety. The San Mateo County Fire Department provides firefighting services to the State Responsibility Area (SRA), roughly encompassing unincorporated Emerald Hills and part of Edgewood County Park and Natural Preserve (Edgewood County Park) within the Planning Area.

As discussed under Impact WILD-2, above, the San Mateo County Parks Department operates a Wildfire Fuel Management Program in its parks to reduce wildfire risks. As part of its 2021-2026 Wildfire Fuel Management Program Projects, the San Mateo County Parks Department is carrying out a project to create and maintain a shaded fuel break along the eastern and southeastern boundary Edgewood County Park, which borders the Planning Area (San Mateo County Parks Department 2022). The San Mateo County Fire Department, which contracts with and is under the authority of CAL FIRE as the CAL FIRE San Mateo-Santa Cruz Unit (San Mateo County Fire Department 2022a), has responsibility for wildfire response in unincorporated County lands, including Edgewood County Park (San Mateo County Fire Department 2022b).

The 2010 General Plan contains adopted policies and implementation programs related to installation or maintenance of infrastructure for wildfire protection in the Planning Area. These policies and programs include Policy PS-9.2, Program PS-33, and Program PS-42. See section 4.20.2 above for the full text of these adopted policies and implementation programs.

The applicable policies and implementation programs from the proposed Public Safety Element Update related to installation or maintenance of infrastructure for wildfire protection are provided below. See Section 4.20.4 for the full text of each policy or implementation program.

Policy PS-13.1: Continue to plan for new construction and redevelopment that decreases the likelihood of fire and decreases the impacts of fire damage.

Program PS-13.1: New and Re-development Siting Requirements

Policy PS-13.2: Continue to allow structures and infrastructure located in the Very High Fire Hazard Severity Zone (VHFSZ) to be rebuilt or redeveloped after a large fire, in accordance with the Building and Fire Codes in place at the time of the rebuilding.

Program PS-13.2: Re-development Policy.

Policy PS-13.3: Ensure that local infrastructure (including water supply and emergency services have adequate capacity to support wildfire emergencies.

Program PS-13.3: Zoning Code, Building Code Updates

Policy PS-13.4: Continue to support and implement fuel management programs.

Program PS-13.4: Statewide Fire Protection Standards

Policy PS-13.5: Periodically reevaluate land use policy allowing for new development in the Very High Fire Hazard Severity Zone.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.9: Hazard Reduction Projects.

Program PS-13.10: Fire Flow Capacity

Program PS-13.11: Establish Firebreak Areas

The proposed Project would not allow development within the designated open space areas within the Planning Area, and development within the foothill neighborhoods of the Planning Area that are within VHFSZ are also regulated in terms of location, design, building materials, and fuel modification/protection. Some of the proposed Public Safety Element Update policies and implementation programs would encourage or require new infrastructure, such as roads and fire breaks, that would work to decrease, rather than exacerbate, fire risk. Construction of new infrastructure associated with implementation of the proposed Project would be subject to separate environmental review that would ensure that potentially significant environmental impacts, if any, are reduced through implementation of best management practices (BMPs)

and/or mitigation measures. See discussion under Section 4.4 Biological Resources and Section 4.10 Hydrology and Water Quality for environmental regulations that would be applicable to development that would occur under the Housing Element update. Therefore, the Project would not require the installation or maintenance of associated infrastructure such as roads, fuel breaks, emergency water resources, powerlines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

With implementation of the proposed Public Safety Element Update policies and implementation programs and applicable environmental regulations, impacts related to installation or maintenance of infrastructure would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

Expose People or Structures to Risk

Impact WILD-4 – Would the Project 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?

Analysis of Impacts

As previously described, the foothill neighborhoods of the Planning Area located west of Alameda de las Pulgas are designated VHFHSZ. Development within this zone is subject to the City or County defensible space and fuel modification requirements. The Redwood City Fire Department provides firefighting services to the Local Responsibility Area (LRA), and the Redwood City Fire Department's Fire Prevention Bureau reviews and approves development plans for fire safety. The San Mateo County Fire Department provides firefighting services to the State Responsibility Area (SRA), roughly encompassing unincorporated Emerald Hills and part of Edgewood County Park and Natural Preserve (Edgewood County Park) within the Planning Area.

As discussed under Impact WILD-2 above, the San Mateo County Parks Department operates a Wildfire Fuel Management Program in its parks to reduce wildfire risks. As part of its 2021-2026 Wildfire Fuel Management Program Projects, the San Mateo County Parks Department is carrying out a project to create and maintain a shaded fuel break along the eastern and southeastern boundary Edgewood County Park, which borders the Planning Area (San Mateo County Parks Department 2022). The San Mateo County Fire Department, which contracts with and is under the authority of CAL FIRE as the CAL FIRE San Mateo-Santa Cruz Unit (San Mateo County Fire Department 2022a), has responsibility for wildfire response in unincorporated County lands, including Edgewood County Park (San Mateo County Fire Department 2022b). Further, the City participates in the San Mateo County Emergency Operations Plan that establishes the San Mateo County Services Council, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts for the various emergency staff utilizing the State's

Standardized Emergency Management System and National Incident Management. Further, new construction within the VHFHSZ is required to comply with California Building Code Chapter 7A, including requirements for fire retardant or ignition resistant construction materials at roofs, eaves, vents, exterior walls, exterior windows and doors, decks, and areas below decks. California Government Code §51182 also requires buildings within these areas to provide defensible space. Defensible space must be maintained up to 100 feet (or the property line, whichever is less) from the building. The Redwood City Building Code also requires fire retardant roofing (§R905.1.3) and fire sprinklers (§903.2).

The 2010 General Plan contains adopted policies and implementation programs related to reducing risks to people and structures from runoff, post-fire slope instability, and drainage changes. These policies and programs include Policy PS-6.1, Policy PS-6.3, Policy PS-9.2, Policy PS-9.3, Policy PS-11.2, Program PS-24, Program PS-26, Program PS-33, Program PS-34, Program PS-35, Program PS-36, and Program PS-42. See section 4.20.2 above for the full text of these adopted policies and implementation programs.

The applicable policies and implementation programs from the Public Safety Element Update that would help reduce or avoid risks to people and structures from runoff, post-fire slope instability, and drainage changes are provided below. See Section 4.20.4 for the full text of each policy or implementation program.

Policy PS-13.1: Continue to plan for new construction and redevelopment that decreases the likelihood of fire and decreases the impacts of fire damage.

Program PS-13.1: New and Re-development Siting Requirements

Policy PS-13.2: Continue to allow structures and infrastructure located in the Very High Fire Hazard Severity Zone (VHFSZ) to be rebuilt or redeveloped after a large fire, in accordance with the Building and Fire Codes in place at the time of the rebuilding.

Program PS-13.2: Re-development Policy

Policy PS-13.3: Ensure that local infrastructure (including water supply and emergency services have adequate capacity to support wildfire emergencies.

Program PS-13.3: Zoning Code, Building Code Updates

Policy PS-13.4: Continue to support and implement fuel management programs

Program PS-13.4: Statewide Fire Protection Standards

Policy PS-13.5: Periodically reevaluate land use policy allowing for new development in the Very High Fire Hazard Severity Zone.

Program PS-13.5: Incorporate Fire Safe Design into New Development and Re-development

Program PS-13.6: Monitor Future Fire Risk and Assess Service

Program PS-13.8: Clean Air Quality Resources

Program PS-13.9: Hazard Reduction ProjectsProgram PS-13.10: Fire Flow CapacityProgram PS-13.11: Establish Firebreak AreasProgram PS-13.12: Emergency Preparedness

[revised] Program PS-32: Emergency Operations Plan

[revised] Program PS-39: Adequate Police and Fire Departments Service Requirements

[revised] Program PS-44: Local Hazard Mitigation Plan

Program PS-60: Inter-Agency Emergency Preparedness/Mutual Aid

The proposed Project would not allow development within the designated open space areas within the Planning Area, and developments within the foothill neighborhoods of the Planning Area that are within VHFHSZ are also regulated in terms of location, design, building materials, and fuel modification/protection. While the proposed Project would facilitate the construction of new housing in VHFHSZ, the proposed Public Safety Element Update policies and implementation programs would require the avoidance or minimization of new residential housing in the VHFHSZ and, if new or redeveloped housing is constructed in the VHFHSZ, the development must comply with fire safe regulations pertaining to building siting, design, and materials; ingress and egress; road standards; and defensible space/fuel modification zones. The other Public Safety Element Update policies and implementation programs cited above require existing and new development to be adequately protected from potential flooding or landslides and to avoid or minimize such hazards through careful site planning and construction. Further, Redwood City and San Mateo County require development project proponents to submit geotechnical reports demonstrating the development would be designed considering site-specific geology and soils conditions and potential hazards. See Section 4.7 Geology and Soils and Section 4.10 Hydrology and Water Quality for more detailed discussion of existing regulations and proposed Public Safety Element Update policies and implementation programs that would ensure development associated with the Project would meet geological and flooding safety standards.

With implementation of the proposed Public Safety Element Update policies and implementation programs and compliance with existing requirements for individual development projects to submit geotechnical investigations, the Project would not 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. This impact would be ***less than significant***.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

4.20.6 References

California Department of Forestry and Fire Protection (CAL FIRE). 2022. Edgewood Incident. Accessed August 23, 2022 at <https://www.fire.ca.gov/incidents/2022/6/21/edgewood/>.

County of San Mateo. 2021. 2021 Multijurisdictional Local Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes. October 2021. Accessed August 22, 2022 at <https://www.smcgov.org/ceo/2021-multijurisdictional-lhmp>.

San Mateo County Fire Department. 2022a. History. Accessed August 23, 2022 at <https://www.cfsfire.org/about/history/>.

_____. 2022b. San Mateo County Fire Jurisdictions. Accessed August 23, 2022 at <https://smcmaps.maps.arcgis.com/apps/instant/lookup/index.html?appid=391c34ef5fe342efbb90a3197157ebf9&find=158%2520Springdale%2520Way%252C%2520Redwood%2520City%252C%2520California%252C%252094062>.

San Mateo County Parks Department. 2022. Edgewood Park Fuel Reduction. Accessed August 22, 2022 at <https://www.smcgov.org/parks/edgewood-park-fuel-reduction>.

5.0 – ALTERNATIVES TO THE PROPOSED GENERAL PLAN UPDATE

Section 15126.6 of the CEQA Guidelines requires an EIR to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives." The section also states that the discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if those alternatives would impede to some degree the attainment of the basic project objectives or would be costlier.

Pursuant to Section 15126.6, this chapter describes three alternatives to the Project and compares their impacts to those of the Project. Pursuant to the CEQA Guidelines, the ability of the alternatives to meet a project's guiding principles is also described, and the "environmentally superior" alternative among the three is identified.

Three significant unavoidable impacts of the proposed Project have been identified. They are Air Quality, Transportation, and Utilities. Pursuant to the CEQA Guidelines, the alternatives in this chapter focus on avoiding or substantially reducing these unavoidable significant impacts and lessening other impacts.

5.1 General Plan Objectives

In accordance with CEQA Guidelines section 15126.6(a), this EIR does not evaluate every conceivable alternative. A feasible range of alternatives that will allow decision-makers to make a reasoned choice and that meet most of the Project's guiding principles has been evaluated.

The Project goals and objectives presented in the Project Description (Section 3.3 Project Objectives) were developed consistent with State CEQA Guidelines Section 15124[b]. They are listed below for the Project.

1. New Housing. Comply with State Laws related to Housing Elements by facilitating new housing growth throughout the Planning Area in response to the region's need for more affordable and market rate housing, as well as develop housing solutions to meet the City's new Regional Housing Needs Allocation (RHNA).
2. Housing Choice. Meet Housing Needs through a Variety of Housing Choices. Respond to the broad range of housing needs in City by supporting a mix of housing types, densities, affordability levels, and designs.
3. Healthy Neighborhoods. Promote healthy neighborhoods that incorporate best practices related to land use, racial equity, mobility, air quality, housing, affordability, safety, environmental justice, community services, and design.

5.0 – Alternatives

4. Equity. Combat housing discrimination, eliminate racial bias, undo historic patterns of segregation, and lift barriers that restrict access in order to foster inclusive communities and achieve racial equity. Identify communities most vulnerable to climate change impacts and establish new goals, policies, and programs for equitable public safety, emergency preparedness, response and recovery.
5. Fair Housing. Affirmatively further fair housing opportunities and promote housing throughout the community for all, including promoting, and assisting in the development of housing that meets the needs of special needs communities in Redwood City.
6. Inclusivity. Comply with State Laws related to Environmental Justice by engaging residents and stakeholders to ensure equitable and inclusive processes, policies, investments, and service systems. Develop strategies to help residents in disadvantaged communities have access to healthy foods, parks, mobility options activity, public programs, and safe homes.
7. Technology. Embrace technology and innovative practices to create smart, sustainable communities and adaptable infrastructure systems.
8. Safety. Comply with State Laws related to Safety Elements by establishing new General Plan goals, policies, and programs to include climate change adaptation and resiliency planning, sea level rise, and additional wildfire measures, and provide direction to improve emergency preparedness, response, and recovery.
9. Adaptive and Resilient Communities. Develop strategies that help people, infrastructure, and community assets adapt to and recover from evolving climate threats and vulnerabilities, and from natural and human-caused hazards.
10. Conformance with Regulatory Requirements. Develop a Safety Element that meets all the requirements under Government Code Section 65302(g), and which reflects State and local regulations for specific hazards, with the intent of protecting people and key infrastructure from damage resulting from an environmental hazard.

5.2 Alternatives Considered But Rejected

Section 15126.6(a) of the CEQA Guidelines states, “An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects of the project[.]” Further, section 15126.6(c) explains, “Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental effects.” To help clarify the meaning of “feasibility,” CEQA Guidelines section 15126.6(f)(1) (Rule of Reason/Feasibility) states, “Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries... and whether the proponent can reasonably acquire, control, or

otherwise have access to the alternative site... No one of these factors establishes a fixed limit on the scope of reasonable alternatives.”

CEQA Guidelines section 15126.6(c) explains that alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are infeasible, or do not avoid any significant environmental effects. CEQA Guidelines section 15126.6(f) indicates that the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitation, jurisdictional boundaries, and the proponents control over alternative sites in determining the range of alternatives to be evaluated in an EIR. With respect to alternative locations, CEQA Guidelines section 15126.6(f) indicates that alternative locations need not be evaluated in every case. The key question in determining whether to evaluate alternative locations is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any significant effects need be evaluated in the EIR. CEQA Guidelines section 15126.6(f)(2) indicates that alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered.

Alternative Location. An alternative location for the proposed Project would not be feasible. Implementation of the proposed Project in an alternative location would result in a new town in another place. None of the proposed General Plan goals, policies, and implementation programs related to the existing Planning Area environment would be attained. Even if an alternative location for the Project could implement the City’s objectives for the Project, only those locations that would avoid or substantially lessen any of the significant impacts of the Project need to be considered in the EIR. This EIR identifies significant unavoidable impacts related to Air Quality, Traffic/Transportation and Utilities. Transferring these impacts to an alternative location could still substantially impact the environment, possibly worse than in Redwood City where coordinated services, infrastructure, plans, and regulations are already in place to help mitigate potential environmental impacts. Because an alternative Project location would be infeasible, would not achieve the Project guiding principles, and would not necessarily avoid or lessen the significant impacts of the Project and might result in new significant impacts, an alternative that would involve a different Project location was eliminated from further detailed consideration. No further evaluation of alternative project locations is required under CEQA.

5.3 Alternatives Selected

Consistent with Section 15126.6, the Alternatives Chapter describes three alternatives to the proposed Project and compares their impacts and ability to meet project objectives to those of the proposed Project. Pursuant to Section 15126.6(e)(2) of the State CEQA Guidelines, the “environmentally superior” alternative among the three is identified. The project alternatives evaluated in this Chapter are:

- Alternative 1: No Project (2010 General Plan)
- Alternative 2: RHNA +15% Residential Buffer
- Alternative 3: Consolidated Housing Sites - Downtown

In accordance with CEQA Guidelines Section 15126.6(d), the discussion of impacts of the alternatives is less detailed than the evaluation included in Sections 4.1 through 4.20 of the impacts associated with the Project’s implementation. Table 5-1 (Alternatives) shows the development assumptions of each alternative. Table 5-2 Alternatives’ Impacts Compared to Project Impacts) shows how impacts associated with the implementation of the alternatives compare to the impacts associated with implementation of the Project; the reader is advised to refer to the accompanying text for a fuller explanation. The tables include numbers for the City limits of Redwood City, not the sphere of influence, because the City has permit authority only over development in the City limits.

**Table 5-1
Alternatives**

Land Use ^(a)	Existing Conditions (2021)	Net Change			
		Proposed Project ^(b)	Alternatives		
			1. No Project (2010 General Plan)	2. RHNA +15% Residential Buffer	3. Consolidated Housing Sites - Downtown
Residential (units)	31,561	38,564 (+7,003)	36,749 (+5,188)	36,833 (+5,276)	33,095 (+1,534)
Population	85,182	109,482 (+24,300)	92,103 (+6,921)	99,427 (+14,245)	88,685 (+3,503)

Source: MIG, 2022
^(a) City limits
^(b) Redwood City General Plan Land Use Element Housing Unit and Population Growth, 2022

**Table 5-2
Alternatives’ Impacts Compared to Project Impacts**

Impact/Resource	No Project (2010 General Plan)	2. RHNA +15% Residential Buffer	3. Consolidated Housing Sites - Downtown
Aesthetics	Similar LTS	Similar LTS	Similar LTS
Agriculture and Forestry Resources	Similar no impact	Similar no impact	Similar no impact
Air Quality	Reduced but still SU	Reduced but still SU	Reduced but still SU
Biological Resources	Reduced LTS	Reduced LTS	Reduced LTS
Cultural Resources	Similar LTS	Similar LTS	Similar LTS
Energy	Reduced LTS	Reduced LTS	Reduced LTS
Geology and Soils	Possible Significant	Similar LTS	Reduced LTS

**Table 5-2
Alternatives' Impacts Compared to Project Impacts**

Impact/Resource	No Project (2010 General Plan)	2. RHNA +15% Residential Buffer	3. Consolidated Housing Sites - Downtown
	Impact Requiring Mitigation		
Greenhouse Gas Emissions	Reduced LTS	Reduced LTS	Reduced LTS
Hazards and Hazardous Materials	Reduced LTS	Similar LTS	Similar LTS
Hydrology and Water Quality	Reduced LTS	Reduced LTS	Reduced LTS
Land Use and Planning	Similar LTS	Similar LTS	Increased impacts
Mineral Resources	Similar no impact	Similar no impact	Similar no impact
Noise	Reduced LTS with mitigation	Reduced LTS	Reduced LTS
Population and Housing	Reduced LTS	Similar LTS	Increased and SU
Public Services	Reduced LTS	Reduced LTS	Reduced LTS
Recreation	Reduced LTS	Reduced LTS	Reduced LTS
Transportation	Reduced but still SU	Reduced but still SU	Reduced but still SU
Tribal Cultural Resources	Similar LTS	Similar LTS	Similar LTS
Utilities and Service Systems	Reduced LTS	Reduced LTS	Reduced LTS
Wildfire	Possible Significant Impact	Reduced LTS	Similar LTS

Source: MIG, 2021

LTS= Less-than-Significant Impacts

SU= Significant and Unavoidable Impacts

5.4 Alternative 1: No Project (2010 General Plan)

State CEQA Guidelines Section 15126.6(e) requires an EIR to analyze the specific alternative of “No Project”. The purpose of describing and analyzing the No Project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impact of not approving the proposed project. The No Project Alternative shall discuss the existing conditions at the time the EIR notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Additionally, State CEQA Guidelines Section 15126.6(e)(3)(a) states that when the project is the revision of an existing land use or regulatory plan, the “No Project” alternative will be the continuation of the existing plan. Typically, this is a situation where new projects would be proposed under the existing plan. Thus, the impacts of the proposed project would be compared to the impacts that would occur under the existing plan.

5.4.1 *Principal Characteristics*

The No Project (2010 General Plan) Alternative assumes that development would occur within the Planning Area, but only in the locations and at the densities allowed or anticipated under the 2010 General Plan. Development assumptions for this alternative are shown in Table 5-1. It also assumes that the proposed policy changes associated with the proposed Project, in particular the amendments to the Housing, Land Use (Built Environment), Public Safety, Building Community, and Natural Resources Elements, and the Environmental Justice policies and programs would not occur.

5.4.2 *Analysis of No Project/Existing General Plan Alternative*

The potential impacts associated with the No Project Alternative are described below.

A. Aesthetics. The amount of development potential would be reduced with the No Project Alternative compared to the Project. As with the Project, aesthetic impacts are anticipated to be less-than-significant. The 2010 General Plan EIR notes that the scenic vistas primary views are provided in the southern and western portions of the Planning Area from the elevated hillside neighborhoods. The views are of urban development, rural clusters among abundant vegetation, rock outcrops, the Santa Cruz Mountains, and the hills beyond the San Francisco Bay. Implementation of the Project and this alternative would result in housing development on sites within the City; these sites are in areas that currently include urban development. New development associated with the alternative could be taller and more dense than currently exists at certain locations; however, this new development would be consistent with the City’s urban character. The adopted General Plan policies require development to be visually sensitive. Furthermore, impacts to scenic resources would not occur because this alternative, like the Project, would not allow for development that is inconsistent with State and local regulations covering architecturally distinctive/historic buildings or historic points of interest. New development may result in an increase in the

number of lighting sources and nighttime lighting within the area; however, given that the area is already developed, such increases are not expected to be substantial. This alternative would result in a similar less-than-significant impact, when compared to the Project.

B. Agriculture and Forestry Resources. The Planning Area is developed with urban and suburban uses. According to the Department of Conservation’s (DOC) Important Farmland Finder, the entire Planning Area is designated as “Urban and Built Up”; no land in the Planning Area is considered:

- Prime Farmland, Farmland of Statewide Importance, or Unique Farmlands nor zoned for agricultural use. No Williamson Act contracts occur;
- Timberland nor zoned for Timberland Production; nor
- Forest land.

This alternative would result in a similar no impact, when compared to the Project.

C. Air Quality. The No Project Alternative would decrease development potential when compared to the Project. The No Project Alternative would not result in operational emissions that exceed BAAQMD regional CEQA thresholds; it would comply with all relevant AQP control measures. However, the No Project Alternative’s construction emissions may exceed BAAQMD thresholds. Further, the No Project Alternative would not provide Environmental Justice policies that work to lessen air quality impacts on disadvantaged communities. The No Project Alternative is considered to have a reduced impacts than the Project, but they would remain significant and unavoidable.

D. Biological Resources. The Planning Area contains suitable habitat for special status plant and wildlife species under the Project and the No Project Alternative. The potential for residential development under the No Project Alternative would be reduced. Further, several proposed Public Safety Element policies and programs which have been identified as having possible impacts will not occur; thus, the possible biological resources impacts associated with these policies will not occur. The No Project Alternative would result in fewer impacts than the Project due to the reduced development potential.

E. Cultural Resources. As with the Project, development under the No Project Alternative could uncover previously unknown cultural resources or destroy/change structures that could be considered historic. Policies from the adopted General Plan require that development or land use proposals, which have the potential to disturb or destroy sensitive cultural resources, to be evaluated by a qualified professional and, if necessary, incorporate mitigation measures into project approvals. This Alternative would result in a similar less-than-significant impact, when compared to the Project with adherence to existing regulations.

F. Energy. As with the Project, development potential associated with the No Project Alternative would require the consumption of electricity, natural gas, and vehicle fuel resources to accommodate growth. Development under this Alternative would have reduced

energy consumption as the potential residential development is less. The No Project Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.

- G. Geology and Soils.** This Alternative would result in geology and soils impacts like those associated with the Project as both the Alternative and the Project development would be exposed to the same existing geologic conditions within the City. As with the Project, existing building requirements would be applicable under this Alternative. Additionally, all future projects would be required to be designed and constructed in compliance with all applicable City and State codes and requirements. However, the new policies associated with the Public Safety Element’s update would not be in place and not available to mitigate climate change/resiliency possible impacts. As such, this Alternative’s impacts would be possibly significant requiring mitigation.
- H. Greenhouse Gas Emissions.** The Project would result in a less-than-significant greenhouse gas (GHG) emissions impact. Overall GHG emissions associated with the No Project Alternative would be reduced less-than-significant compared to the Project due to the decrease in development potential.
- I. Hazards and Hazardous Materials.** The Project impacts are less-than-significant for hazard and hazardous materials, with the implementation of the adopted General Plan’s policies. The No Project Alternative would further reduce the less-than-significant impact because the No Project Alternative provides for fewer housing units, thereby decreasing the number of residents possibly exposed to hazardous materials transport, use, or disposal. The No Project Alternative would not increase possible hazard emissions nor the handling of hazardous materials within one-quarter mile of a school. The No Project Alternative would subject fewer potential residents to airport safety hazards and related noise than the Project because the residential development potential is lower. The No Project Alternative would result in reduced less-than-significant impacts than the Project due to the reduced development potential.
- J. Hydrology and Water Quality.** Potential development associated with implementation of the No Project Alternative would be subject to all existing water quality regulations and programs. This Alternative assumes a population increase that would be less than the Project. The No Project Alternative would result in reduced less-than-significant impacts than the Project due to the reduced development potential.
- K. Land Use and Planning.** As with the Project, the No Project Alternative would not physically divide an established community. The potential development is consistent with the *Plan Bay Area 2050* because the Plan’s growth projection uses RHNA allocation as its base, thus the Alternative meets the growth projection. The No Project Alternative would have similar less-than-significant impacts as the Project.
- L. Mineral Resources.** The Planning Area is designated as having little potential for development of mineral resources. No portion of the Planning Area is designated MRZ-2. As such, there are no areas where adequate information indicates that significant mineral deposits are present or where it is judged a high likelihood for their presence exists within the Planning Area. This Alternative would have a similar, no impact on mineral resources when compared with the Project.

- M. Noise.** The Project would result in less-than-significant noise impacts with mitigation incorporated. The No Project Alternative's residential development potential is less than the Project. Under this Alternative, mitigation measures would still be required to ensure that train ground vibration and vibration noise is mitigated for residential projects within 200' and commercial projects within 120' of the rail track. Due to the reduction in development potential, the number of units possibly impacted by train ground shaking would be reduced. Noise impacts when compared with the Project would be reduced but remain less-than-significant with mitigation.
- N. Population and Housing.** This Alternative has a reduced potential of residential development and population growth compared to the Project. However, the No Project's development potential of 5,188 units complies with the RHNA unit requirement. This Alternative's impacts, when compared with the Project, would be reduced and remain less-than-significant.
- O. Public Services.** This Alternative's residential development potential is 36,749, which is 6,084 fewer units than the Project. This Alternative's anticipated population is 92,103, which is 17,379 fewer residents than the Project. The decreased development potential and decreased number of residents is anticipated to result in less demand for public services compared to the Project. This Alternative's public service impacts, when compared with the Project, would be reduced, and remain less-than-significant.
- P. Recreation.** The Project anticipates an incremental increase in demand for park facilities; however, payment of the in-lieu park fees and/or dedication of parkland to the City is anticipated to ensure that the impacts are less-than-significant. The No Project Alternative would result in a reduced number of potential housing units and associated population growth, which would result in less demand for recreational facilities compared to the Project. Like the Project, any residential development project will be required to provide a dedication of parkland or pay the in-lieu park fees; as such, the No Project Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.
- Q. Transportation.** The Project would not conflict with a circulation system (including transit, roadways, bicycle, and pedestrian facilities) program, plan, ordinance nor policy. The Project would not substantially increase hazards due to geometric design features or incompatible uses. The Project would not result in inadequate emergency vehicle access. However, the Project would conflict or be inconsistent with CEQA Guidelines section 15064.3(b) even with mitigation measures; this is primarily due to increased VMT in areas away from transit corridors. The Project's impact is significant and unavoidable. The No Project Alternative reduces the development potential; however, the potential residential units are located throughout Redwood City. As such, the increased VMT would continue under the No Project Alternative. The No Project Alternative would result in fewer impacts; however, they would remain significant and unavoidable.
- R. Tribal Cultural Resources.** As with the Project, potential development under the No Project Alternative could uncover previously unknown Tribal Cultural Resources. Compliance with existing regulations would ensure that potential impact would be reduced. This Alternative would result in a similar less-than-significant impact, when compared to the Project.

- S. Utilities and Service Systems.** The Project will have a less-than-significant impacts related to sewer/wastewater treatment, storm drainage, and other utility services. The Project would not require nor result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or telecommunication facilities. The Project will not have an impact on water supply with the implementation of adopted policies, subsequent CEQA review for site-specific development proposals. The Project would not generate solid waste in excess of State or local standards nor in excess of local infrastructure capacity, would not impair attaining solid waste reduction goals, and would comply with federal, state, and local solid waste management/reduction statutes and regulations. Given this Alternative has a decrease in residential development potential, the demand for utilities and their service systems would be reduced as well. This Alternative would result in fewer impacts than the Project; and would remain less than significant.
- T. Wildfire.** Very high fire severity zones are present in the western portions of the Planning Area. The existing General Plan policies, including identifying special on-site fire protection measures during project review, would apply. However, the additional wildfire policies contained within the proposed Public Safety Element will not be implemented. As such, this Alternative could result in possible significant impacts as compared to the Project.

Attainment of Project Objectives

The No Project Alternative assumes a continuation of the existing 2010 General Plan. As this alternative would result in a reduction in the residential development potential and would not include any of the updated goals and policies in the Housing, Public Safety, Built Environment elements, and the Environmental Justice policies as proposed by the Project.

The No Project Alternative it would generally meet the following project objectives, but not to the same extent as the Project:

1. *New Housing - Comply with State law requiring an update to the Housing Element to incorporate the City's RHNA obligations with the goal of meeting 150 percent of the RHNA obligations.* The No Project Alternative provides residential development potential (5,188 units) exceeding the City's 6th Cycle RHNA (4,588 units) by 13 percent.
2. *Housing Choice - Locate housing in places close to services, transit, and jobs and in existing high opportunity residential neighborhoods.* The adopted General Plan provides for housing opportunities throughout Redwood City including areas close to services, transit, jobs, and in high opportunity residential neighborhoods.
3. *Healthy Neighborhoods - Promote healthy neighborhoods that incorporate best practices related to land use, racial equity, mobility, air quality, housing, affordability, safety, environmental justice, community services, and design.* The adopted General Plan provides for mobility, air quality, safety, community service, and some environmental justice policies and programs; it does not provide a robust program addressing racial equity environmental justice issues facing Redwood City today.

4. *Inclusivity* - The 2010 General Plan encourages governance, equitable and inclusive processes, access to healthy foods, public services, mobility and recreation options for all neighborhoods within Redwood City.
5. *Safety - Protect people, infrastructure, and community assets from natural and human-caused hazards.* The 2010 General Plan's Public Safety Element contains many beneficial policies and programs providing for community safety.

The No Project Alternative would not meet the following project objectives:

1. *New Housing* - The No Project Alternative supports residential development consistent with the City's 6th Cycle RHNA (4,588 units) but would not accommodate as much residential development as the Project. The No Project Alternative only provides a buffer of 13 percent to ensure there is no net loss of lower-income units when HCD recommends a buffer of between 15 and 30 percent, while the Project would provide a 53% buffer.
2. *Housing Choice* – The No Project Alternative would provide fewer housing choices in Redwood City and fewer opportunities to respond to the broad range of housing needs in the community.
2. *Equity* – *The No Project Alternative would not address challenges facing disadvantaged and vulnerable communities related to Environmental Justice issues and would not result in goals and policies designed to reverse historic patterns of segregation.*
3. *Fair Housing* – *The No Project Alternative would not address new State laws and guidelines established to address pollution burdens and locate affordable housing in communities with high value resources (e.g., high performing schools, access to parks, etc.). The adopted 2010 General Plan incorporates policies and programs addressing environmental justice issues; however, recent State laws require additional focus that is not provided in the current General Plan.*
4. *Inclusivity* – *Outreach and engagement associated with the 2010 General Plan occurred more than a decade ago. The No Project Alternative doesn't afford the community an opportunity to provide input related to trends, changed conditions and needs that should be addressed when addressing housing, safety, or environmental justice issues. There would be no opportunities to engage residents, stakeholders, vulnerable and disadvantaged communities to ensure an equitable and inclusive processes for collecting input on goals, policies, investments, and service systems.*
5. *Safety* – *The No Project Alternative would not update the Public Safety Element to incorporate information, goals, policies, and programs to address climate change, resiliency, sea level rise, flooding, and wildfire risk as required by State Law. The No Project Alternative would not meet the City's goals and objectives established for the Safety Element Update.*
6. *Adaptive and Resilient Communities* - *The No Project Alternative would not develop strategies that help people, infrastructure, and community assets adapt to and recover*

from evolving climate threats and vulnerabilities, and from natural and human-caused hazards as required by State Law. The No Project Alternative would not meet the City's objective established for adaptive and resilient communities.

7. *Conformance with Regulatory Requirements -The No Project Alternative would not develop a Safety Element that meets all the requirements under Government Code Section 65302(g), and which reflects State and local regulations for specific hazards, with the intent of protecting people and key infrastructure from damage resulting from an environmental hazard as required by recently passed State Law.*

5.5 Alternative 2: RHNA +15% Residential Buffer

5.5.1 Principal Characteristics

The RHNA +15% Residential Buffer Alternative provides residential development opportunities (5,276 units) exceeding the City's 6th Cycle RHNA (4,588 units) by 15 percent. This Alternative assumes that policies and goals associated with the proposed Built Environment Element (Urban Form and Land Use Chapter), Housing Element, Public Safety Element, and the Environmental Justice policies and programs, would apply. Development assumptions for this alternative are shown in Table 5-1.

5.5.2 Analysis of the RHNA +15% Residential Buffer

The potential impacts associated with the RHNA +15% Residential Buffer Alternative are described below.

- A. Aesthetics.** The RHNA +15% Residential Buffer Alternative assumes the amount of residential development potential would be reduced by 38 percent compared to the Project. As with the Project, aesthetic impacts are anticipated to be less-than-significant under the RHNA +15% Residential Buffer Alternative. The 2010 General Plan EIR notes that the scenic vistas primary views are provided in the southern and western portions of the Planning Area from the elevated hillside neighborhoods. The views are of urban development, rural clusters among abundant vegetation, rock outcrops, the Santa Cruz Mountains, and the hills beyond the San Francisco Bay. Implementation of this Alternative would result in housing development sites within the urban areas of the city. While the new development could be taller and more dense than what currently exists, the new development would be consistent with the urban character. Impacts to scenic resources would not occur because this Alternative, like the Project, would not allow for development that is inconsistent with State and local regulations covering architecturally distinctive/historic buildings or historic points of interest. Potential new uses and development projects may result in an increase in the number of lighting sources and nighttime lighting within the area; however, given that the area is already developed, such increases are not expected to be substantial. This Alternative would result in a similar less-than-significant impact, when compared to the Project.

B. Agriculture and Forestry Resources. The Planning Area is developed with urban and suburban uses. According to the DOC's Important Farmland Finder, the entire Planning Area is designated as "Urban and Built Up". No land in the Planning Area is considered:

- Prime Farmland, Farmland of Statewide Importance, or Unique Farmlands nor zoned for agricultural use. No Williamson Act contracts occur;
- Timberland nor zoned for Timberland Production; and
- Forest land.

As with the Project, this alternative would have a similar no impact on agriculture and forestry resources.

C. Air Quality. The RHNA +15% Residential Buffer Alternative decreases the development potential when compared to the Project; however, it is likely that air quality mitigation measures needed for the Project would also be required for this Alternative. Construction emissions may exceed BAAQMD thresholds; the RHNA +15% Residential Buffer Alternative would still provide policy to reduce air quality impacts on disadvantaged communities. The RHNA +15% Residential Buffer Alternative is considered to have a reduced impacts but they would remain significant and unavoidable, when compared with the Project.

D. Biological Resources. The Planning Area contains suitable habitat for special status plant and wildlife species under the Project and the RHNA +15% Residential Buffer Alternative. While the potential for residential development under the RHNA +15% Residential Buffer Alternative is reduced, all future development projects would be required to adhere to existing regulations. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.

E. Cultural Resources. As with the Project, potential development under the RHNA +15% Residential Buffer Alternative could uncover previously unknown cultural resources or destroy/change structures that could be considered historic. As with the Project, development under this Alternative would not result in a substantial adverse change in the significance of a historical resource because they are currently protected under both existing and proposed policies. This Alternative would result in a similar less-than-significant impact, when compared to the Project with adherence to existing regulations and the proposed General Plan Update policies.

F. Energy. Development potential associated with the RHNA +15% Residential Buffer Alternative would require the consumption of electricity, natural gas, and vehicle fuel resources to accommodate growth. Potential development under this Alternative is less than the Project and would have reduced energy consumption compared to the Project. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.

G. Geology and Soils. This alternative would result in geology and soils impacts like those associated with the Project as both the RNHA +15% Residential Buffer Alternative and the

Project potential development would be exposed to the same existing geologic conditions. Existing building requirements would be applicable under this Alternative. Additionally, all future projects would be required to be designed and constructed in compliance with all applicable City and State codes and requirements. This Alternative would result in a similar less-than-significant impact, when compared to the Project.

- H. Greenhouse Gas Emissions.** The Project would result in a less-than-significant greenhouse gas (GHG) emissions impact. Overall GHG emissions associated with the RHNA +15% Residential Buffer Alternative would be slightly reduced compared to the Project due to the decrease in development potential. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.
- I. Hazards and Hazardous Materials.** Hazardous materials would be present during construction and operation of the potential development associated with the RHNA +15% Residential Buffer Alternative. The amount and use of these chemicals present during construction would be limited, would comply with existing government regulations, and would not be considered a significant hazard. Any future development under this Alternative would be subject to the City's standard environmental review, which would include identification of any contaminated sites. This Alternative would result in a similar less-than-significant impact, when compared to the Project.
- J. Hydrology and Water Quality.** Potential development associated with this alternative is subject to the existing water quality regulations and programs, as is the Project. Adherence to the existing regulations and programs reduces impacts to a less-than-significant level similar to the Project. The potential development associated with this alternative is less than the Project; as such, possible hydrology and water quality impacts associated with development levels (such as amount of impervious surfaces and anticipated runoff) would be reduced when compared to the Project. The RHNA +15% Residential Buffer Alternative would have a reduced less-than-significant impact when compared with the Project.
- K. Land Use and Planning.** As with the Project, the RHNA +15% Residential Buffer Alternative potential development would not physically divide an established community. The potential development is consistent with the *Plan Bay Area 2050* as it meets RHNA (the base for the Plan's growth projection). This Alternative's impacts are similar to the Project and would remain less-than-significant.
- L. Mineral Resources.** The Planning Area is designated as having little potential for development of mineral resources. No portion of the Planning Area is designated MRZ-2. As such, there are no areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists within the Planning Area. This Alternative would have a similar no impact on mineral resources when compared with the Project.
- M. Noise.** The Project would result in less-than-significant noise impacts with incorporation of mitigation measures. The RHNA +15% Residential Buffer Alternative would result in less potential development than the Project. Under this Alternative, mitigation measures would still be required to ensure train ground vibration and vibration noise is mitigated for residential projects within 200' and commercial projects within 120' of the rail track. Fewer

units will be impacted train ground shaking and noise. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.

- N. Population and Housing.** This Alternative would result in a decreased number of potential housing units and population growth compared to the Project. However, the 5,276 unit development potential continues to satisfy RHNA. Given the reduction in population and housing potential, this alternative would continue to satisfy the *Plan Bay Area 2050* but not as well as the Project. This Alternative would result in a similar less-than-significant impact, when compared to the Project.
- O. Public Services.** This Alternative’s residential development potential is 36,833, which is 6,000 fewer units than the Project. This Alternative’s anticipated population is 99,427, which is 10,055 fewer residents than the Project. The decreased development potential and decreased number of residents is anticipated to result in less demand for public services compared to the Project. This Alternative’s public service impacts, when compared with the Project, would be reduced, and remain less-than-significant.
- P. Recreation.** The Project anticipates an incremental increase in demand for park facilities; however, payment of the in-lieu park fees and/or dedication of parkland to the City is anticipated to ensure that the impacts are less-than-significant. The RHNA +15% Alternative would result in a reduced number of potential housing units and associated population growth, which would result in less demand for recreational facilities compared to the Project. Like the Project, all residential development projects will be required to provide a dedication of parkland or pay the in-lieu park fees; as such, the RHNA +15% Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.
- Q. Transportation.** The Project would not conflict with a circulation system (including transit, roadways, bicycle, and pedestrian facilities) program, plan, ordinance nor policy. The Project would not substantially increase hazards due to geometric design features or incompatible uses. The Project would not result in inadequate emergency vehicle access. However, the Project would conflict or be inconsistent with CEQA Guidelines section 15064.3(b) even with mitigation measures; this is primarily due to increased VMT in areas away from transit corridors. The Project’s impact is significant and unavoidable. This Alternative reduces the development potential; however, the potential residential units are located throughout Redwood City. As such, the increased VMT would continue under the RHNA +15% Residential Buffer Alternative and, although they would result in fewer impacts, they would remain significant and unavoidable.
- R. Tribal Cultural Resources.** As with the Project, potential development under this Alternative could uncover previously unknown Tribal Cultural Resources. Compliance with existing regulations would ensure that potential impact would be reduced. This Alternative would result in a similar less-than-significant impact, when compared to the Project, with adherence to existing regulations.
- S. Utilities and Service Systems.** The Project will have a less-than-significant impact related to sewer/wastewater treatment, storm drainage, and other utility services. The Project would

not require nor result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or telecommunication facilities. The Project will not have an impact on water supply with the implementation of adopted policies. The Project would not generate solid waste in excess of State or local standards nor in excess of local infrastructure capacity, would not impair attaining solid waste reduction goals, and would comply with federal, state, and local solid waste management/reduction statutes and regulations. Given this Alternative has a decrease in residential development potential, the demand for utilities and their service systems would be reduced as well. This alternative would result in fewer impacts than the Project and the potential for impact would remain less than significant.

- T. Wildfire.** Very high fire severity zones are present in the western portions of the Planning Area. The existing General Plan policies and the Project's proposed wildfire policies would be applicable, thus providing the same level of protection as the Project. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.

Attainment of Project Objectives

The RHNA +15% Residential Buffer Alternative assumes 5,276 housing units will be planned; this is a 14 percent reduction of the Project. This Alternative would not include any of the updated goals and policies in the Housing, Public Safety, Built Environment elements, and the Environmental Justice policies as proposed by the Project.

This alternative would meet the following project objectives:

1. *New Housing* - The RHNA +15% Residential Buffer Alternative supports residential development consistent with the City's 6th Cycle RHNA (4,588 units) and would accommodate a buffer of 15 percent, consistent with the HCD recommended buffer between 15 and 30 percent to ensure there is no net loss of lower-income units. However, the Project provides more opportunity for housing, thus the RHNA +15% Alternative supports the objective but not as well as the Project.
2. *Housing Choice* – *The RHNA +15% Residential Buffer Alternative would locate housing in places close to services, transit, and jobs and in existing high opportunity residential neighborhoods.* The RHNA +15% Alternative provides for housing opportunities throughout Redwood City including areas close to services, transit, jobs, and in high opportunity residential neighborhoods. However, the Project provides more opportunity for housing; thus the RHNA +15% Alternative supports the objective but not as well as the Project.
- 3 *Healthy Neighborhoods* - *Promote healthy neighborhoods that incorporate best practices related to land use, racial equity, mobility, air quality, housing, affordability, safety, environmental justice, community services, and design.* The environmental justice and other policies addressing health neighborhoods are the same in both the Project and the RHNA +15% Residential Buffer Alternative. Thus, this objective is met equally as well under both scenarios.

- 4 *Equity – The RHNA +15% Residential Buffer Alternative addresses challenges facing disadvantaged and vulnerable communities related to Environmental Justice issues and provides goals and policies designed to reverse historic patterns of segregation. As such, the RHNA +15% Alternative supports this objective as does the Project.*
- 5 *Fair Housing – The RHNA +15% Residential Buffer Alternative addresses new State laws and guidelines established to address pollution burdens and locate affordable housing in communities with high value resources (e.g., high performing schools, access to parks, etc.). As such, the RHNA +15% Alternative supports this objective.*
- 6 *Inclusivity – The RHNA +15% Residential Buffer Alternative would engage residents and stakeholders in ensuring equitable and inclusive processes, policies, investments, and service systems. Ensure residents in disadvantaged communities have access to healthy foods, parks, mobility options activity, public programs, and safe homes. As such, the RHNA +15% Alternative supports this objective to the same extent as the Project because the processes, policies, and investments and service systems would be the same under both scenarios.*
- 7 *Safety - The RHNA +15% Residential Buffer Alternative would result in goals, policies, and programs to protect people, infrastructure, and community assets from evolving climate threats and vulnerabilities, and from natural and human-caused hazards consistent with State Law and project objectives related to safety. The RHNA +15% Alternative supports this objective to the same extent as the Project because the safety related goals, policies, and programs are the same in both scenarios.*
- 8 *Adaptive and Resilient Communities - The RHNA +15% Residential Buffer Alternative develops the same strategies as the Project that help people, infrastructure, and community assets adapt to and recover from evolving climate threats and vulnerabilities, and from natural and human-caused hazards as required by State Law. The RHNA +15% Residential Buffer Alternative would meet the City’s objective established for adaptive and resilient communities as would the Project.*
- 9 *Conformance with Regulatory Requirements - The RHNA +15% Residential Buffer Alternative develops a Safety Element that meets all the requirements under Government Code Section 65302(g), and which reflects State and local regulations for specific hazards, with the intent of protecting people and key infrastructure from damage resulting from an environmental hazard as required by recently passed State Law. The RHNA +15% Residential Buffer Alternative would meet the City’s objective established for adaptive and resilient communities as would the Project.*

This RHNA +15% Residential Buffer Alternative would generally meet the project objectives above; however, it does not provide as many housing opportunities as the Project as listed above for objectives 1 and 5. Consequently, the New Housing and Housing Choice objectives are better met by the Proposed Project because it *locates more housing in places close to services, transit, and jobs and in existing high opportunity residential neighborhoods.*

5.6 Alternative 3: Consolidated Housing Sites - Downtown

5.6.1 *Principal Characteristics*

The Consolidated Housing Sites - Downtown Alternative assumes that Housing Element's residential development potential would be restricted to the Downtown area. This would result in a reduction in residential and population potential from the Project. The Consolidated Housing Sites – Downtown Alternative will provide an additional development potential of 1,534 units. This Alternative assumes some of the proposed changes to the Built Environment Element (Urban Form and Land Use Chapter) will not occur. Specifically, the increased density for the Mixed Use designations and the redesignation of parcels along Woodside Road would not occur. The proposed changes to the Public Safety Element and the Environmental Justice policies will be applied.

The Consolidated Housing Sites-Downtown Alternative is proposed as a possible scenario that may reduce the air quality and transportation impacts associated with the Project's VMT. It is important to note that the unit count associated with this Alternative will not comply with RHNA and thus, does not comply with State law.

The potential impacts associated with the Consolidated Housing Sites Alternative are described below.

A. Aesthetics. The Consolidated Housing Sites - Downtown Alternative assumes the amount of residential development potential would be reduced by 23 percent compared to the Project. As with the Project, aesthetic impacts are anticipated to be less-than-significant. The southern and western scenic vistas will be unchanged. This Alternative would result in housing development on sites within the urban areas of the city. Impacts to scenic resources would not occur because this Alternative, like the Project, would not allow for development that is inconsistent with State and local regulations covering architecturally distinctive/historic buildings or historic points of interest. New uses and developments may result in an increase in the number of lighting sources and nighttime lighting currently within the area; however, given that the area is already developed, such increases are not expected to be substantial. This Alternative would result in a similar less-than-significant impact, when compared to the Project.

B. Agriculture and Forestry Resources. The Planning Area is a developed area with urban and suburban uses. According to the DOC's Important Farmland Finder, the entire Planning Area is designated as "Urban and Built Up"; no land in the Planning Area is considered:

- Prime Farmland, Farmland of Statewide Importance, or Unique Farmlands nor zoned for agricultural use. No Williamson Act contracts occur;
- Timberland nor zoned for Timberland Production; nor
- Forest land.

This alternative would have a similar no impact on agriculture and forestry resources as the Project.

- C. Air Quality.** The Consolidated Housing Sites – Downtown Alternative would decrease the amount of development potential when compared to the Project; however, it is likely that air quality mitigation measures needed for the Project would also be required for this Alternative. Air quality concerning construction emissions may also exceed BAAQMD thresholds, the Consolidated Housing Sites – Downtown Alternative would still provide policy to reduce air quality impacts on disadvantaged communities. The Consolidated Housing Sites – Downtown Alternative is considered to have a reduced impacts but they would remain significant and unavoidable.
- D. Biological Resources.** The Planning Area contains suitable habitat for special status plant and wildlife species under the Project and the Consolidated Housing Sites – Downtown Alternative. The potential for residential development under this Alternative would be reduced and would be moved further away from the potential biological resources east of US101 and in the foothills. That said, all future projects would be required to adhere to existing regulations. This Alternative would result in a reduced less-than-significant impact, when compared to the Project.
- E. Cultural Resources.** As with the Project, development under the Consolidated Housing Sites - Downtown Alternative could uncover previously unknown cultural resources or destroy/change structures that could be considered historic. Development under this Alternative would not result in a substantial adverse change in the significance of a historical resource because they are currently protected under both existing and proposed policies. This Alternative would result in a similar less-than-significant impact, when compared to the Project, with adherence to existing regulations and the proposed General Plan Update policies.
- F. Energy.** As with the Project, development associated with the Consolidated Housing Sites - Downtown Alternative would require the consumption of electricity, natural gas, and vehicle fuel resources to accommodate growth. Potential development under this Alternative would have reduced energy consumption compared to the Project. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased development potential.
- G. Geology and Soils.** The Consolidated Housing Sites - Downtown Alternative would result in geology and soils impacts like those associated with the Project as both the Consolidated Housing Sites - Downtown Alternative and the Project would be exposed to the same existing geologic conditions within the City. As with the Project, existing building requirements would be applicable under this Alternative. Additionally, all future projects would be required to be designed and constructed in compliance with all applicable City and State codes and requirements. This Alternative would result in a similar less-than-significant impact, when compared to the Project.
- H. Greenhouse Gas Emissions.** The Project would result in a less-than-significant greenhouse gas (GHG) emissions impact. Overall GHG emissions associated with the Consolidated Housing Sites - Downtown Alternative would be reduced compared to the

Project due to the decrease in development potential. This Alternative would result in reduce less-than-significant impacts, when compared with the Project.

- I. Hazards and Hazardous Materials.** Hazardous materials would be present during construction and operation of development associated with the Consolidated Housing Sites - Downtown Alternative. The amount and use of these chemicals present during construction would be limited, would comply with existing government regulations, and would not be considered a significant hazard. As with the Project, any future development under Consolidated Housing Sites - Downtown Alternative would be subject to the City's standard environmental review, which would include identification of any contaminated sites. This Alternative would result in a similar less-than-significant impact, when compared to the Project.
- J. Hydrology and Water Quality.** Potential development associated with this alternative is subject to the existing water quality regulations and programs, as is the Project. Adherence to the existing regulations and programs reduces impacts to a less-than-significant level similar to the Project. The potential development associated with this alternative is less than the Project; as such, possible hydrology and water quality impacts associated with development levels (such as amount of impervious surfaces and anticipated runoff) would be reduced when compared to the Project. The Consolidated Housing Sites - Downtown Alternative would have a reduced less-than-significant impact when compared with the Project.
- K. Land Use and Planning.** The Consolidated Housing Sites - Downtown Alternative would not physically divide an established community. The potential development in this Alternative is 1,534 units, which is below the required RHNA. As such, this Alternative's development potential is below the *Plan Bay Area 2050's* growth projections because the Plan uses RHNA allocations as its base. This Alternative would have an increased land use and planning impacts when compared with the Project because this Alternative does not support the Plan Bay Area's 2050.
- L. Mineral Resources.** The Planning Area is designated as having little potential for development of mineral resources. No portion of the Planning Area is designated MRZ-2. As such, there are no areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists within the Planning Area. As with the Project, this Alternative would have a similar no impact on mineral resources.
- M. Noise.** The Project would result in less-than-significant noise impacts with incorporation of mitigation measures. The Consolidated Housing Sites - Downtown Alternative would result in less development potential than the Project. Under this Alternative, mitigation measures would still be required to ensure that train ground vibration and vibration noise is mitigated for residential projects within 200' and commercial projects within 120' of the rail track. Fewer units will be impacted by freight train ground shaking and noise. This Alternative would result in reduced less-than-significant impacts than the Project due to the decreased number of units impacted by the ground shaking and noise.
- N. Population and Housing.** This Alternative would result in 5,469 fewer potential housing units and an anticipated reduced population growth compared to the Project. Given the

decrease, this alternative would not satisfy *Plan Bay Area 2050* and would not satisfy the 6th Cycle RHNA, thus not meet State law. When compared with the Project, this Alternative would increase population and housing impacts, which would be significant and unavoidable because the RHNA and State law are not met.

- O. Public Services.** This Alternative’s residential development potential is 33,095, which is 5,469 fewer units than the Project. This Alternative’s anticipated population is 88,685, which is 20,797 fewer residents than the Project. The decreased development potential and decreased number of residents is anticipated to result in less demand for public services compared to the Project. This Alternative’s public service impacts, when compared with the Project, would be reduced, less-than-significant.
- P. Recreation.** The Project anticipates an incremental increase in demand for park facilities; however, payment of the in-lieu park fees and/or dedication of parkland to the City is anticipated to ensure that the impacts are less-than-significant. The Consolidated Housing Sites – Downtown Alternative would result in 5,469 fewer housing units and associated population growth, which would result in less demand for recreational facilities compared to the Project. Like the Project, all residential development projects will be required to provide a dedication of parkland or pay the in-lieu park fees; as such, the Consolidated Housing Sites – Downtown Alternative would result in fewer impacts than the Project due to the reduced development potential and remain less-than-significant when compared with the Project.
- Q. Transportation.** The Project would not conflict with a circulation system (including transit, roadways, bicycle, and pedestrian facilities) program, plan, ordinance nor policy. The Project would not substantially increase hazards due to geometric design features or incompatible uses. The Project would not result in inadequate emergency vehicle access. However, the Project would conflict or be inconsistent with CEQA Guidelines section 15064.3(b) even with mitigation measures; this is primarily due to increased VMT in areas away from transit corridors. The Project’s impact is significant and unavoidable. This Alternative reduces the development potential; furthermore, the potential residential units are focused in the Downtown area adjacent to transit. As such, the increased VMT would continue under the Consolidated Housing Sites – Downtown Alternative. This Alternative would result in fewer impacts compared to the Project; however, they would remain significant and unavoidable.
- R. Tribal Cultural Resources.** As with the Project, potential development under the Consolidated Housing Sites - Downtown Alternative could uncover previously unknown Tribal Cultural Resources. Compliance with existing regulations would ensure that potential impact would be reduced. This Alternative would result in a similar less-than-significant impact, when compared to the Project, with adherence to existing regulations.
- S. Utilities and Service Systems.** The Project will have a less-than-significant impact related to sewer/wastewater treatment, storm drainage, and other utility services. The Project would not require nor result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or telecommunication facilities. The Project will not have an impact on water supply with the implementation of adopted policies, subsequent CEQA review for site-specific development proposals. The Project would not generate solid waste in excess of State or local standards nor in excess of

local infrastructure capacity, would not impair attaining solid waste reduction goals, and would comply with federal, state, and local solid waste management/reduction statutes and regulations. Given this Alternative has a decrease in residential development potential, the demand for utilities and their service systems would be reduced as well. This Alternative would result in reduced impacts as compared to the Project; however, they would remain less than significant.

- T. Wildfire.** Very high fire severity zones are present in the western portions of the Planning Area. The existing General Plan policies and the Project's Public Safety Element wildfire policies would apply. This Alternative would result in a similar less-than-significant impact, when compared to the Project.

Attainment of Project Objectives

The Consolidated Housing Sites - Downtown Alternative assumes a reduction in residential development potential within the Planning Area. This alternative assumes the Public Safety Element and the Environmental Justice policies will apply.

This Consolidated Housing Sites - Downtown Alternative would meet the following project objectives:

1. *Healthy Neighborhoods - Promote healthy neighborhoods that incorporate best practices related to land use, racial equity, mobility, air quality, housing, affordability, safety, environmental justice, community services, and design.* The environmental justice and other policies addressing healthy neighborhoods are the same in both the Project and the Consolidated Housing Sites - Downtown Alternative. Thus, this objective is met equally as well under both scenarios.
2. *Equity – The Consolidated Housing Sites - Downtown Alternative provides the same environmental justice goals, policies, and programs as the Project. As such, it would address challenges facing disadvantaged and vulnerable communities related to Environmental Justice issues and would result in goals and policies designed to reverse historic patterns of segregation.*
3. *Fair Housing – The Consolidated Housing Sites - Downtown Alternative and the Project propose the same goals, policies, and programs addressing Affirmatively furthering fair housing opportunities. The Alternative Affirmatively furthers fair housing opportunities and promote housing throughout the community for all, including promoting, and assisting in the development of housing that meets the needs of special needs communities in Redwood City.*
4. *Inclusivity – Consolidated Housing Sites - Downtown Alternative and the Project have the same goals, policies, and programs addressing inclusivity. The Consolidated Housing Sites – Downtown Alternative would engage residents and stakeholders in ensuring equitable and inclusive processes, policies, investments, and service systems. Ensure residents in disadvantaged communities have access to healthy foods, parks, mobility options activity, public programs, and safe homes. As such, Consolidated Housing Sites - Downtown Alternative supports this objective.*

5. *Safety* – The Safety Element policies will be implemented under the Project and the Consolidated Housing Sites - Downtown Alternative. This will *result in goals, policies, and programs to protect people, infrastructure, and community assets from evolving climate threats and vulnerabilities, and from natural and human-caused hazards consistent with State Law and project objectives related to safety.* As such, Consolidated Housing Sites - Downtown Alternative supports this objective.
6. *Adaptive and Resilient Communities* – The Project and the Consolidated Housing Sites – Downtown Alternative develop the same *strategies that help people, infrastructure, and community assets adapt to and recover from evolving climate threats and vulnerabilities, and from natural and human-caused hazards.* The Consolidated Housing Sites - Downtown Alternative supports this objective.
7. *Conformance with Regulatory Requirements* - The Project and the Consolidated Housing Sites – Downtown Alternative develop a *Safety Element that meets all the requirements under Government Code Section 65302(g), and which reflects State and local regulations for specific hazards, with the intent of protecting people and key infrastructure from damage resulting from an environmental hazard.* The Consolidated Housing Sites - Downtown Alternative supports this objective.

Consolidated Housing Sites - Downtown Alternative would not meet the following project objectives:

1. *New Housing* - While the Consolidated Housing Sites - Downtown Alternative facilitate new housing growth, it does not *facilitate new housing growth throughout the Planning Area in response to the region's need for more affordable and market rate housing, as well as develop housing solutions to meet the City's new Regional Housing Needs Allocation (RHNA).* The Consolidated Housing Sites - Downtown Alternative supports residential development potential of 1,534 units, significantly less than required by the City's 6th Cycle RHNA (4,588 units) and provides no buffer to ensure there is no net loss of lower-income units. This alternative fails to meet the New Housing Project Objective.

Consolidated Housing Sites - Downtown Alternative would meet the following project objectives; however, it would not do it as well as the Project:

1. *Housing Choice* - While the Consolidate Housing Sites – Downtown Alternative provides for additional housing opportunity; it would not *meet housing needs through a variety of housing choices* because it provides for fewer housing choices. Further, it *responds to the broad range of housing needs in City by supporting a mix of housing types, densities, affordability levels, and designs* but not as well as the Project because it provides fewer housing opportunities.

Environmentally Superior Alternative

The CEQA Guidelines (section 15126[e][2]) stipulate, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Alternative 1 (No Project) and Alternative 3 (Consolidated Housing Sites – Downtown) would result in reduced or similar less-than-significant impacts as the Project; however, they would not meet State laws regarding both the Public Safety and

5.0 – Alternatives

Housing elements. Alternative 2 (RHNA +15% Residential Buffer) is the only alternative that will comply with State law and the City's objectives. Alternative 2 also reduces some of environmental impacts. As such the "environmentally superior alternative" is Alternative 2 (RHNA +15% Residential Buffer).

6.0 – CEQA MANDATED SECTIONS

6.1 Growth-Inducing Effects

CEQA Guidelines Section 15126.2(d) requires that the EIR discuss "...the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." The proposed project would plan ensure capacity for the addition of 4,588 new housing units to accommodate the City's RHNA for the 2023-2031 Housing Element planning period. However, no substantial, detrimental, growth-inducing effect is expected since the units are anticipated by City land use plans.

The Project includes goals, policies, and programs that will provide City staff and decision-making bodies with a foundation for analyzing and rendering decisions for long-range planning related to physical development and public services. The Project is intended to achieve the planning goals set forth in the Housing, Land Use, and Public Safety elements over the long-term planning horizon. These amendments establish the development potential for various land uses and serve as a policy guide for determining the future physical development and community services within the Planning Area. The potential growth-related impacts associated with the Project have been evaluated in the topical chapters of this EIR (Aesthetics, Biological Resources, etc.); as appropriate, mitigation measures have been applied to address any impacts. In particular, the Population and Housing and Public Services chapters address the concerns associated with future development that will have impactful growth-inducing effects.

6.2 Cumulative Impacts

CEQA Guidelines Section 15130 requires that the EIR discuss "cumulative impacts" when the project's incremental effect is cumulatively considerable. A cumulative impact consists of an impact which is created because of the combination of the project evaluated in the EIR together with other projects causing related impacts. When the project's incremental effect and the effects of other projects is not significant, the EIR indicates why the cumulative impact is not significant and is not discussed in further detail in the EIR. When the project's contribution to a significant cumulative impact is less than cumulatively considerable and thus is not significant, the EIR identifies facts and analysis (e.g., required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact) supporting a conclusion that the contribution will be less than cumulatively considerable.

Area and Extent of Cumulative Analysis

The analysis of cumulative impacts focuses on San Mateo County and its constituent cities. This cumulative analysis includes an assessment of buildout under the current Redwood City General Plan (2040), project related development, planned development resulting from Housing Element updates in San Mateo County, and pending development within Redwood City that

requires an amendment to the General Plan commonly known as the “Gatekeeper” projects. Together these are referred to as the "cumulative conditions" as these projects are considered to contribute to cumulative impacts.

Table 6-1: San Mateo RHNA

San Mateo County	Very-Low Income (<50% of Area Median Income)	Low-Income (50-80% of Area Median Income)	Moderate Income (80-120% of Area Median Income)	Above Moderate Income (>120% of Area Median Income)	Total
Atherton	94	54	56	144	348
Belmont	488	281	283	733	1,785
Brisbane	317	183	303	785	1,588
Burlingame	863	497	529	1,368	3,257
Colma	44	25	37	96	202
Daly City	1,336	769	762	1,971	4,838
East Palo Alto	165	95	159	410	829
Foster City	520	299	300	777	1,896
Half Moon Bay	181	104	54	141	480
Hillsborough	155	89	87	223	554
Menlo Park	740	426	496	1,284	2,946
Millbrae	575	331	361	932	2,199
Pacifica	538	310	291	753	1,892
Portola Valley	73	42	39	99	253
Redwood City	1,115	643	789	2,041	4,588
San Bruno	704	405	573	1,483	3,165
San Carlos	739	425	438	1,133	2,735
San Mateo	1,777	1,023	1,175	3,040	7,015
South San Francisco	871	502	720	1,863	3,956
Unincorporated San Mateo	811	468	433	1,121	2,833
Woodside	90	52	52	134	328
Total	12,196	7,023	7,937	20,531	47,687

Redwood City is also in the process of evaluating General Plan amendments for the following projects that are expected to develop in the 2023 – 2031 planning period. These sites represent a partial list of sites identified in the City’s “Gatekeeper” process to address project that file a General Plan Amendment Initiation request. Other sites identified through the Gatekeeper process are included in the Opportunity Sites.

Table 6-2: Gatekeeper Projects

Project Address	Commercial/Non-Residential	Market Rate Units	Below Market Rate Units (affordable)	Total Units
<u>1205-1295 Veterans</u>	5000 sq. ft. retail, 6000 sq. ft. daycare	360	70	430
<u>505 East Bayshore</u>	-	51	9	60
<u>2300 Broadway</u>	200,000 sq. ft. office, 15,000 sq. ft. retail	-	80	80
<u>601 Allerton</u>	85,000 sq. ft. office, 540 sq. ft. retail	-	26	26

Analysis of Cumulative Impacts

6.2.1 Aesthetics:

Potential cumulative impacts with respect to aesthetics and scenic resources would be less than significant as discussed below.

Scenic Vistas - A cumulative impact to scenic vistas would occur if individual projects within the Planning Area, combine with additional projects in the surrounding area, result in the substantial degradation in the quality, or obstruction of, scenic views available from a recognized scenic vista. Project-specific impacts with respect to scenic vistas were determined to be less than significant because existing architectural review procedures have been adopted by the City. Since the vast majority of the Planning Area is urbanized, incremental changes resulting from the proposed Project, in addition to similar incremental changes in the surrounding area, would not result in cumulative impacts with respect to scenic vistas.

Scenic Highways the Development facilitated by the Project is not expected to substantially disrupt views from an officially designated state scenic highway. Therefore, the proposed Project would not make a substantial contribution to a cumulative significant impact to a scenic highway.

Degrade Visual Character - Future, individual projects within the Planning Area were determined to result in less-than-significant impacts to the existing visual character and quality of the Planning Area and surrounding area. Future projects considered in the cumulative scenario would be subject to the City's underlying zoning, development, and architectural standards. Future projects within the Planning Area would be located where similar existing uses occur and would not entail a significant visual change such that the existing visual character or quality of project sites and their surroundings would be substantially degraded. The proposed Project would not substantially contribute to cumulative significant impacts that would degrade the existing visual character or quality of the area and its surroundings.

Light and Glare – Project-related impacts with respect to light and glare were determined to be less than significant. Lighting and building materials and designs for future development would

be subject to review and approval by the City prior to approving building permits to ensure that light and glare impacts are less than significant. The Project would not substantially contribute to a cumulative light and glare impact.

The Project would not make a substantial contribution to a significant cumulative impact with respect to aesthetics.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.2 Agriculture and Forestry:

The City of Redwood City General Plan and Zoning do not designate land for agricultural production or timber harvesting within the City limits. Lands outside the City that could accommodate agricultural and forestry production are located west of Redwood City adjacent to areas of the City that have lower density land use designations that would provide few opportunity sites for the development contemplated by the Housing Element update. The proposed Project would not remove land from agricultural production, rezone agricultural lands to accommodate proposed development, or place development in a location where it may impact existing agricultural operations. The City of Redwood City result in any impacts related to agricultural resources, forest lands, timberland, or Timberland Production areas, primarily due to the lack of these lands in the City. As the Project would not impact agricultural or forestry resources, the proposed Project would not contribute to a cumulative significant impact related to agriculture and forestry resources.

Level of Significance Before Mitigation

No Impact

Mitigation Measures

None required.

6.2.3 Air Quality:

As described in Section 4.3.1, the Bay Area Basin is designated nonattainment for national and State O₃ standards, national and State PM_{2.5} standards, and national PM₁₀ standards. The BAAQMD, in developing its CEQA significance thresholds, considered the emission levels at which a project's individual emissions would be cumulatively considerable (BAAQMD, 2017). The BAAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant.

The analyses of emissions associated with potential Project growth in 2040 under Impact AIR-2 indicates the proposed Project would result in increased emissions that do not exceed BAAQMD planning assumptions in the AQMP; however, ozone precursor (e.g., NO_x and ROG) and PM emissions during construction activities could exceed applicable BAAQMD thresholds of significance.

Level of Significance Before Mitigation

The Cumulative (2040) Plus Project growth projection and associated construction emissions could result in emissions levels that exceed BAAQMD-recommended CEQA thresholds of significance. This is a **potentially significant impact**.

Mitigation Measures

See Mitigation Measure AIR-2.

Level of Significance After Mitigation

Mitigation Measure AIR-2 would require applicants prepare project-specific air quality analyses and incorporate mitigation, as necessary, to reduce exhaust emissions of NO_x and other pollutants from construction vehicles; however, since specific development projects are unknown, it cannot be assured that all future development would be able to reduce emissions below BAAQMD thresholds. Nonetheless, because future construction activities could result in ozone precursor and PM emissions that exceed BAAQMD thresholds, the Project could increase the frequency and/or severity of air quality violations in the Bay Area Basin or otherwise impede attainment of air quality standards. Therefore, this impact would be **significant and unavoidable**.

6.2.4 Biological Resources:

The Planning Area supports a mix of developed land in the central portion of the Planning Area and undeveloped land in the northern and southern portions of the Planning Area. Although the central portion of the Planning Area is largely developed, streams and other natural habitat patches are present and may support some sensitive biological resources including sensitive natural communities, wetlands, nesting birds, and roosting bats. In contrast, the northern and southern portions of the Planning Area provide suitable habitat for rare, threatened, or endangered flora or fauna, sensitive vegetation communities, and wetlands, and wildlife movement corridors, and nesting and roosting species. Implementation of the Project, in combination with cumulative development projects, could contribute to cumulative effects on the existing sensitive biological resources in the region. Thus, Safety Element activities and new construction and/or redevelopment resulting from the Project would be significant.

Although the Project may potentially contribute to cumulative impacts related to sensitive biological resources within the Planning Area, compliance with regulations and permits administered by resource agencies (e.g., U.S. Army Corps of Engineers, CA Fish and Wildlife, Regional Water Quality Control Board, etc.) will address potential cumulative impacts. Projects that would be implemented following adoption of the Housing and Safety Element Updates would be subject to various federal, state, regional, local regulations, and City of Redwood City

General Plan policies and implementation programs for protecting biological resources (see Section 4.4.2 Regulatory Setting). Additionally, potential project impacts on sensitive biological resources would be mitigated through the implementation of applicable mitigation measures depending on the potential impacts (See Mitigation Measures BIO-1 through BIO-13. With implementation of these measures, the Project would not make a cumulatively considerable contribution to any significant cumulative biological resource impact.

Level of Significance Before Mitigation

Significant.

Mitigation Measures

Mitigation Measures BIO-1 through BIO-13.

6.2.5 Cultural Resources:

The San Francisco Bay region, including the Planning Area, has been occupied by Native Americans for thousands of years, and the region has been inhabited by European settlers since the 1800s. Redwood City contains many historical landmarks and resources, as well as historic districts to reflect the value of these resources. Due to implementation of the goals and policies and mitigation measures included within the City’s adopted General Plan, potential impacts of future development associated with the Project on known existing cultural resources or previously undiscovered cultural resources would be reduced to a less than significant level of impact.

Consistent with federal and state laws, the General Plans of the surrounding jurisdictions have similar goals and policies to protect cultural resources within their boundaries. State law requires the City and surrounding jurisdictions to notify Native American representatives if tribal human remains are found.

For these reasons, potential cumulative impacts to cultural resources will be addressed, and future development in the Planning Area under the Project would not make a significant contribution to any cumulative regional impacts on cultural resources.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.6 Energy:

Individual projects do not demand enough energy usage to impact cumulative energy demand for the region. Thus, the analysis of energy usage is by nature a cumulative analysis focused on whether an individual project’s contribution to energy demand is cumulatively considerable. As

described under Impact Energy-1 and Energy-2, implementation of the Project would result in a reduction in per capita energy usage compared to the 2040 scenario without Project implementation; this impact would be considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None Required.

6.2.7 GEOLOGY and SOILS:

Impacts related to geology and soils are generally site specific and not cumulative in nature because each project area has unique geologic considerations that would be subject to uniform site development and construction standards. As such, the potential for cumulative impacts is limited. Impacts associated with potential geologic hazards related to soil or other conditions occur at individual building sites. These effects are site-specific, and impacts would not be compounded by additional development. Adherence to existing policies and code requirements would reduce impacts from geologic hazards to a less-than significant level. Implementation of the Project would not result in a cumulatively considerable impact.

Level of Significance Before Mitigation

Less than Significant.

Mitigation Measures

None Required.

6.2.8 Greenhouse Gas Emissions:

As stated in Section 4.8.4, global climate change is the result of GHG emissions worldwide; individual projects do not generate enough GHG emissions to influence global climate change. Thus, the analysis of GHG emissions is by nature a cumulative analysis focused on whether an individual project's contribution to global climate change is cumulatively considerable. As described under Impact GHG-1 and GHG-2, the Project would result in GHG emissions that do not exceed the significance thresholds applied in this EIR and comply with the 2017 Climate Change Scoping Plan.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

None required.

6.2.9 Hazards and Hazardous Materials:

Impacts related to hazards and hazardous materials are generally site-specific and not cumulative in nature because each project site has unique considerations that would be subject to uniform site development and construction standards. As such, the potential for cumulative impacts is reduced. Impacts associated with potential fire hazards occur at individual building sites. These effects are site-specific, and impacts would not be compounded by additional development within the urban setting of the Planning Area.

The adopted Public Safety Element contains goals, policies, and implementation programs that would protect residents, sensitive receptors, and structures from exposure to hazardous materials or accidents and spills involving hazardous materials. It is assumed other surrounding jurisdictions have similar General Plan goals, policies, and programs as they generally reflect compliance with State laws regarding various hazards and hazardous materials.

Compliance with the adopted Public Safety Element and the proposed new and revised goals, policies, and implementation programs of the Public Safety Element Update would result in impacts from hazardous materials and fire that would be less than significant. Implementation of the proposed Project would not result in a cumulatively considerable impact.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.10 Hydrology and Water Quality:

The Planning Area and surrounding communities are subject to water-related hazards, including flooding, and contain surface and groundwater resources that are impacted by polluted runoff. State law requires that the Safety Elements of city general plans, including Redwood City, address potential flooding, erosion, changing drainage patterns, and other water-related hazards. The Natural Resources Element of the General Plan contains goals, policies, and implementation programs to protect surface water resources and improve the quality of runoff. The Public Safety Element of the General Plan contains goals, policies, and implementation measures that acknowledge these potential risks and require structures and infrastructure to provide adequate levels of safety for the community. The General Plans for neighboring cities and the San Mateo County General Plan are all required to identify potential risks from flooding and address water quality protection, and, as such, they contain goals, policies, and programs to address these risks and reduce runoff pollution. These goals, policies, and programs are intended to be consistent with State law and are similar to those of the Redwood City General Plan.

In addition, various state laws, including CEQA, require jurisdictions as lead agencies to identify potential hazards related to new development as well as protect important water resources from new development. Local water districts must prepare Urban Water Management Plans and

Groundwater Sustainability Plans are required to provide long-term protection for both surface and groundwater supplies for the region. As such, potential cumulative impacts from future development would be minimized. Therefore, future development in the Planning Area under the Project would not constitute a significant contribution to any cumulative regional impacts with respect to hydrology and water quality. This impact would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.11 Land Use:

Implementation of the proposed Project under cumulative conditions would not result in a significant land use impact by 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 proposed Project would be consistent with applicable land use plans and policies adopted for the purpose of avoiding or reducing an adverse environmental effect. 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 proposed Project. Implementation of the proposed Project 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 potential impact would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.12 Mineral Resources:

The General Plan map does not identify any mineral resource sites within the Planning Area. Implementation of the proposed Project would not result in mineral resources impacts, and there would be no substantial adverse cumulative mineral resources impact associated with implementation of the Project.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.13 Noise:

Construction under the cumulative conditions would require compliance with the City Noise Ordinance that implements General Plan policies and measures designed to protect residents from excessive construction noise and vibration, to require the appropriate evaluation of construction noise and vibration impacts at sensitive receptor locations, and to implement feasible construction noise and vibration control measures when development occurs near noise-sensitive land uses. Therefore, construction noise would not make a cumulatively considerable contribution to a significant cumulative construction noise impact.

Project implementation under cumulative conditions will require compliance with Redwood City Municipal Code noise standards that limit or mitigate noise impacts on or from new development in noise-impacted areas to reduce noise levels to acceptable levels. Once constructed, development projects would not generate significant increases in traffic noise levels on a cumulative basis. Therefore, future operations would not make a cumulatively considerable contribution to a significant cumulative operational noise impact.

The proposed Project could facilitate the construction of mixed-use and residential projects adjacent to the existing Caltrain railroad. This potential future planned mixed-use and residential projects could be exposed to excessive passenger train vibration levels that exceed FTA-recommended vibration criteria (for human annoyance and response factors) of 72 or 75 VdB, respectively. In general, ground-borne operational vibration impacts are site-specific and do not have the potential combine with vibration impacts. No cumulative impact would occur.

The proposed Project would not result in a cumulative considerable contribution to cumulative noise and vibration impacts.

Level of Significance Before Mitigation

Project implementation would result in residential development near the Caltrain rail corridor to assess and minimize passenger train vibration impacts such that disturbance to building occupants would not occur. Therefore, this impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure NOISE-1.

Level of Significance After Mitigation

Mitigation NOISE-1 would require applicants prepare project-specific passenger train vibration to reduce vibration to acceptable thresholds. Therefore, this impact would be **less than significant with mitigation**.

6.2.14 *Population And Housing:*

As described above, the proposed Housing Element Update 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 related population, identified in the Housing Element Update would be consistent with the City's RHNA and *Plan Bay Area 2050*. Implementation of the proposed 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. This cumulative impact would be considered less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.15 *Public Services:*

Project implementation under cumulative conditions would generally increase the land use intensities in the service areas for the Redwood City Fire Department and the Redwood City Police Department, potentially causing incremental and cumulative increases in the number of calls for fire and/or police protection services, demand for facilities and services within the boundaries of the school districts that serve the Planning Area, increases in the number of people who use the public library facilities.

The increase in demand for public services attributable to the Project would be incremental as development occurs and would be offset by Development Impact Fees and/or special taxes assessments that would offset the costs of increased service needs as necessary and ensure that performance objectives are not substantially affected by incremental increases in land use intensity within service areas. If a new or expanded facilities were to be required as a result of population growth, these new facilities would need to comply with existing environmental regulations, which would include a development review process and environmental review pursuant to CEQA.

Increases in student enrollment resulting from project implementation under cumulative conditions would be accommodated within school districts consistent with California Government Code Section 65996, payment of school impact fees in accordance with California Government Code Section 65995 and/or Education Code Section 17620 which constitute full and complete mitigation for potential impacts to schools caused by development.

For these reasons, the Project's potential cumulative impacts to public services would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.16 Recreation:

Development of residential projects within the Planning Area would generally increase the usage of parks and recreational facilities in the City and surrounding area, potentially causing the need for additional parks and recreational facilities due to subsequent increases in population. However, such new development would be subject to DIF fees and the City's Quimby Ordinance. These parks and recreation funding mechanisms will offset the incremental and cumulative increase in demand for park facilities from implementation of the Project as well as cumulative development projects. The Project would not cause a substantial adverse cumulative impact with respect to recreational facilities. This impact would be less than significant.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.17 Transportation:

The analyses of VMT associated with the potential Project growth in 2040 indicates the proposed Project would result in increased VMT that exceed per resident thresholds. When evaluating cumulative conditions that include the addition of the proposed land uses in the Redwood City Focused General Plan Update, would have a potentially significant cumulative impact because the Project would increase citywide home-based VMT per resident to 11.9, greater than the applicable VMT threshold of 11.7 (refer to Table 6-3, based on Housing Element Table 4.14-7).

Table 6-3: Project Generated VMT

Item	Home-Based VMT per Resident ¹
Redwood City	
Baseline Conditions	13.2
Cumulative (2040) without Project Conditions	12.0
Cumulative (2040) with Project Conditions	11.9
Impact Assessment	
Home-Based VMT per Resident Threshold (11.7) (Impact Conclusion)	11.9 (1.7 percent greater than threshold) (Significant)
SOURCE: C/CAG-VTA Travel Model; Fehr & Peers, 2022.	
Notes:	
1. Rounded home-based VMT per resident to the nearest one-tenth.	

While the Project is estimated to have a significant VMT impact, it is important to note that the Project *reduces* the citywide home-based VMT per resident as compared to the Cumulative (2040) without Project as well as Baseline conditions.

Level of Significance Before Mitigation

The Cumulative (2040) Plus Project growth projection and associated VMT would exceed the threshold of significance for Home Based VMT per resident. This is a **potentially significant impact**.

Mitigation Measures

See Mitigation Measure TR-1 and TR-2.

Level of Significance After Mitigation

Mitigation Measures TR-1 and TR-2 would require applicants to prepare project-specific TDM Programs and comply with any Transportation Impact Fee adopted in the future. As discussed below, these measures will not avoid the potentially significant transportation impacts.

- TR-1: While the mitigation requires TDM Plans that quantify the VMT effectiveness of the plan, not all residential projects will be able to fully reduce their VMT impact because of its land use context (i.e., low-density suburban area, low transit access, etc.). Since, the City cannot demonstrate that the VMT from each future residential development project would be reduced to the degree that is needed to eliminate the VMT impact, the home-based VMT per resident impact would be considered **significant and unavoidable with Mitigation TR-1**.
- TR-2: The City may create a community-wide multimodal transportation impact fee program in the future. Since the City has no specified timeline for implementing this measure, the home-based VMT per resident impact would be considered **significant and unavoidable with Mitigation TR-2**.

6.2.18 Tribal Cultural Resources:

The San Francisco Bay region, including the Planning Area, has been occupied by Native Americans for thousands of years, and the region has been inhabited by European settlers since the 1800s. Therefore, it is possible that earthwork within the City or surrounding jurisdictions may disturb Native American tribal cultural or archaeological resources. However, the urbanization of the City makes discovery of these resources less likely due to extended periods of development. State law requires local jurisdictions, including the City, to consult with local Native American tribal representatives when development or public works projects may affect tribal cultural resources (i.e., SB 18 and AB 52). This government-to-government consultation process is critical to identifying actions that could have significant impacts on tribal cultural resources before any ground disturbance occurs in the surrounding region.

The Historical Resources Element of the adopted General Plan contains goals and policies which will continue to identify, preserve, and protect archaeological and tribal cultural resources within the Planning Area. Consistent with federal and state laws, the General Plans of the surrounding jurisdictions have similar goals and policies to protect cultural resources within their boundaries. State law requires the City and surrounding jurisdictions to notify Native American representatives if tribal human remains are found.

For these reasons, potential cumulative impacts to tribal cultural resources would be minimized, and future development in the Planning Area under the Project would not make a significant contribution to any cumulative regional impacts on tribal cultural resources.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.2.19 Utilities and Service Systems:

Development that results from the proposed Project, in combination with other cumulative development in San Mateo County and its constituent cities would increase the demand for utilities. Utilities can be potentially impacted by increased population, especially when new facilities are not built to meet population increases or when existing facilities are not adequately maintained. Alternatively, impacts may also occur when new facilities are built, resulting in physical impacts to existing resources. Overall, the General Plan includes policies to mitigate potential negative environmental impacts. Additionally, new facilities would be subject to both the provisions of the General Plan and compliance with CEQA. When required, environmental review would identify site-specific conditions and physical changes resulting from utility services expansion. Typical impacts associated with new facilities include short-term construction activities related to air quality pollutant emissions, temporary traffic detours, changes in traffic distribution, and noise.

As discussed previously under Impacts UTIL-1 and UTIL-2, the City would likely be able to reduce supply shortfalls through implementation of its Water Shortage Contingency Plan (WSCP), among other actions, such as the implementation of relevant adopted General Plan goals, policies, and implementation measures, implementation of local and State water conservation efforts, and compliance with the CEQA review process. Considering the Project would be anticipated to generate an increase in water demand that would be within the City's ISG, such actions would ensure there is adequate water supply available for the Project alone. However, the development that may occur in the UWMP service area that is unrelated to the Project (i.e., current or future development that is not associated with any of the potential housing sites included in the Housing Element Update sites inventory or Focused General Plan Update) and development outside the UWMP service area that would also receive water supply from the SFPUC under contractual obligations would present a potential cumulatively significant impact.

Housing proposed under the Project would increase future water demand placed on the City. In combination with additional development in the Planning Area that is not part of the Project, development under the Project could exacerbate future project water supply shortfalls under cumulative conditions. The City can reduce to some extent the potentially significant cumulative water supply impacts of development under the Project in combination with other development that may occur within the Planning Area by implementing the WSCP, in addition to requiring compliance with the various policies, Code requirements, and additional requirements described above. However, there could be a significant amount of non-Project related development that occurs in the Planning Area in the future by 2040. Considering the Project's anticipated water demand in 2040 would fall under the City's ISG by only 723 AFY, Project-related development in combination with non-Project-related development would likely cause the City's water demand to exceed its ISG from SFPUC under normal conditions, which would in turn exacerbate water supply shortages under drought conditions, and reduce or eliminate the potential minimization in water supply shortages the City could have otherwise achieved without implementation of the Project.

As discussed previously, the City has considered alternative water supply sources to reduce the impact of future development under the Project on water supply shortages and is actively implementing a recycled water program for that purpose. The City is also in the preliminary phases of evaluating groundwater as a potential alternative water supply source. There is currently not enough information available to determine whether groundwater would serve as a viable alternative water supply source for development that would occur under cumulative conditions. Similarly, other potential sources or water supply (e.g., potable water transfers and increased contractual amounts from the SFPUC) are too speculative to be considered viable alternative water supplies under cumulative conditions. At this time, requiring development under the Project to use alternative water supply sources, such as groundwater or recycled water, is considered infeasible as mitigation.

Considering (1) the Project would contribute to a cumulatively significant water supply impact in combination with non-Project development that may occur within the Planning Area, and (2) the City has determined that requiring projects to use alternative water supply sources as mitigation is infeasible, this impact would remain ***significant and unavoidable***.

Level of Significance Before Mitigation

Significant and Unavoidable

Mitigation Measures

None. The City has explored the potential to require development that may be constructed under the Project to tie into recycled water infrastructure to reduce demand on potable sources and, thereby, reduce the Project's cumulative contribution to projected water supply shortages. However, as explained above, it is too speculative at this time to determine whether requiring development under the Project to use recycled water would serve as adequate mitigation and whether said mitigation would reduce potentially significant cumulative impacts to a less than significant level. For example, the feasibility of extending recycled water infrastructure to future development depends on a "critical mass" of development that could connect to new or existing recycled water infrastructure and to the proximity of existing infrastructure to future project sites.. As such, there is no feasible mitigation, and this impact remains **significant and unavoidable**.

Level of Significance After Mitigation

Significant and Unavoidable

6.2.20 Wildfire:

The proposed Project could have a cumulative impact on the ability of local agencies to protect residents, workers, and structures from wildfires. Development within the Planning Area under the Project could increase the population and/or activities and ignition sources, which may increase the chances of a wildfire and increase the number of people and structures exposed to risk of loss, injury, or death. The potential cumulative impacts from multiple projects in a specific area can also cause fire response service decline and must be analyzed for each project.

The Public Safety Element update contains policies and implementation programs that would help protect residents and structures from wildfires, as described above under Impacts WILD-1 through WILD-4. These policies and implementation programs promote public education and awareness prior to fires, require safe design and construction of buildings within high fire zones, encourage cooperation and coordination with regional and other local agencies to monitor the City before, and protect/defend hillside areas during, wildfires, and help protect downstream and downhill properties from potential landslides, runoff, or pollution associated with wildfires. It is assumed other surrounding jurisdictions have similar General Plan policies and programs as they generally reflect compliance with State laws regarding wildfires and wildfire hazards.

The proposed Project along with cumulative development projects represent an incremental increase in potential fire service demand or subsequent impacts after wildfires. The cumulative impact results in a situation where response capabilities erode, and service levels may slowly decline. Fire Service Developer Agreements ensure funding for firefighting and emergency medical resources for new development, which requires development projects to contribute fair-share funding toward fire services. Funding provided by development projects results in capital that can be used toward firefighting and emergency response improvements so that the Redwood City Fire Department is able to perform its mission into the future at levels consistent

with the General Plan. Therefore, the Project, in combination with cumulative projects, would not result in a cumulatively considerable impact relative to wildfires.

Level of Significance Before Mitigation

Less than Significant Impact

Mitigation Measures

None required.

6.3 Significant Unavoidable Impacts

CEQA Guidelines Section 15126.2(b) requires that the EIR discuss "significant environmental effects which cannot be avoided if the proposed project is implemented." The impacts listed below are identified as significant and unavoidable for one of four reasons: 1) no potentially feasible mitigation has been identified; 2) potential mitigation has been identified but may be found by the Lead Agency to be infeasible; 3) with implementation of feasible mitigation, the impact still would not, or might not, be reduced to a less-than-significant level; or 4) implementation of the mitigation measure would require approval of another jurisdictional agency whose approval will be pursued by the Lead Agency but cannot be guaranteed as of the publication date of this EIR. Because these significant unavoidable impacts "cannot be alleviated without imposing an alternative design" (CEQA Guidelines Section 15126.2[b]), Chapter 4.22 (Alternatives to the Proposed General Plan Update) of this EIR evaluates a range of feasible alternatives that could lessen the identified significant unavoidable impacts. Chapter 4.22 also evaluates the alternatives' ability to meet Project objectives.

The following impacts have been identified in this EIR as significant and unavoidable:

- **Impact AIR-1:** Could conflict with or obstruct implementation of the applicable air quality plan.
- **Impact AIR-2:** Could 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.
- **Impact AIR-3:** Could expose sensitive receptors to substantial pollutant concentrations.
- **Impact AIR-5:** Could cause substantial adverse cumulative impacts with respect to Air Quality.
- **Impact TR-2:** Could conflict or be inconsistent with CEQA Guidelines section 15064.3(b) (Project Generated VMT).
- **Impact UTIL-6:** Could cause substantial adverse cumulative impacts with respect to utilities and service systems.

The implications of each significant, unavoidable impact identified above are described in the Specific EIR chapter referenced with the impact. The Project is being proposed, notwithstanding

these effects, to fully achieve the Project objectives described in the Project Description (Chapter 3.0) of this EIR. If the City approves the Project (or an alternative to the proposed Project) that would result in significant, unavoidable impacts, the City must adopt a Statement of Overriding Considerations per CEQA Guidelines Section 15093 describing why the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of the approved Plan outweigh its significant, unavoidable impacts.

6.4 Significant Irreversible Environmental Changes

CEQA Guidelines Section 15126.2(c) requires that the EIR discuss "significant irreversible environmental changes which would be caused by the proposed Project should it be implemented." Since nearly all of Redwood City is developed and the Project would not significantly change the circulation pattern or make other major changes to backbone infrastructure facilities, no significant irreversible physical changes caused by the Project will occur. The proposed Project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline or diesel fuel for construction equipment and vehicles, as well as the use of these same resources during long-term operation of individual projects facilitated by the Plan, as typically associated new housing. Because development facilitated by the proposed Project would be required by law to comply with California Code of Regulations Title 24 (including updates over time) and adopted City energy conservation ordinances and regulations, implementation of the project would not be expected to use energy in a wasteful, inefficient, or unnecessary manner.

The consumption or destruction of other non-renewable or slowly renewable resources would also result during construction, occupancy, and use of individual developments pursuant to the proposed Project (that consumption associated with the development and use of housing). These resources would include, but would not be limited to, lumber, concrete, sand, gravel, asphalt, masonry, metals, and water. Project implementation would also irreversibly use water and solid waste landfill resources. However, the proposed Project would not involve a large commitment of those resources relative to supply, nor would it consume any of those resources wastefully, inefficiently, or unnecessarily, especially considering ongoing City conservation and recycling programs.