HARBOR VIEW PROJECT

Draft Environmental Impact Report
SCH No. 2018012016

Prepared for
City of Redwood City

January 2019

ESA

CITY OF REDWOOD CITY
PUBLIC NOTICE

NOTICE OF AVAILABILITY AND PUBLIC HEARING

45-Day Public Review Period
for the Draft Environmental Impact Report (EIR)

Beginning on: **January 16, 2019**
Ending on: **March 2, 2019**

City Council Public Hearing
for Public Comments on the Draft EIR

February 11, 2019 at 7:00 p.m.
Council Chambers, City Hall
1017 Middlefield Road, Redwood City
No decision will be made at this meeting.

Project:	The proposed Harbor View Project would develop a 27.08-acre site with a high tech office campus including 1,144,748 square feet of commercial office use in four office buildings, a 35,000 square foot employee amenity building, two parking structures and surface parking containing 3,855 spaces, and associated green space/landscaping, circulation, and infrastructure improvements.
Applicant:	Jay Paul Company
Lead Agency:	City of Redwood City

How to get more information: The Draft EIR is available for review online at https://www.redwoodcity.org/city-hall/current-projects/development-projects?id=53 or in person at the following locations:

- **City Hall**, 1017 Middlefield Road, Redwood City between the hours of 8:00 a.m. to 5:00 p.m., Monday to Friday.
- **Redwood City Main Public Library** at 1044 Middlefield Road, Redwood City during business hours, including weekends.

How to provide comments: Comments on the draft EIR must be given at the public hearing or in writing by **March 2, 2019 at 5:00 p.m.** Comments on the project generally may be given in writing at any time or at the public hearing. All written comments should be directed to the project planner:

Lisa Costa Sanders, Contract Principal Planner
lcostasanders@redwoodcity.org | (650) 780- 7363
1017 Middlefield Road, Redwood City 94063

En español: *Para más información en español, favor de comunicarse con (650) 780-7234 o planning@redwoodcity.org*

Project Description: The proposed project is a high tech office campus with four 7-story office buildings, one 4-level and one 6-level parking structure, and a 2-story employee amenities building. The overall project concept is an office campus centered with an approximately four-acre green space with a series of landscaped spaces that comprise approximately 36% of the project site. The central green space connects all the project buildings with a landscaped promenade. The proposed project also includes 10% of the site reserved for public access with perimeter landscaped pedestrian and bicycle pathways and seating areas.

The proposed project will develop 1,144,748 square feet (sq.ft.) of commercial office use, in addition to 35,000 square feet of amenities use. The four proposed office buildings are each approximately 286,000 sq.ft. in floor area and 100 feet tall (plus mechanical equipment screen). The proposed 2-story amenities building is approximately 30 feet tall. The project proposes up to 3,855 on-site parking spaces. The project applicant proposes to implement a Transportation Demand Management Program (TDM) to reduce vehicle trips.

The project proponent requests a General Plan and Zoning Map Amendment to change the General Plan land use designation from Industrial-Light (LI) and Industrial-Port Related (IP) to Commercial Office Professional/Technology (CP) and change the Zoning Map district from Industrial Restricted (IR) and General Industrial (GI) to Commercial Park (CP).

Draft EIR: In accordance with State California Environmental Quality Act (CEQA) guidelines, a Draft EIR has been prepared by the City (Lead Agency) to examine the potential environmental effects of the project. The Draft EIR is intended to inform Redwood City decision makers, other responsible agencies and the general public of the potential environmental consequences associated with the project and identify mitigation measures that would reduce or eliminate those impacts. The project site is a listed toxic site as identified under Section 65962.5 of the Government Code. The project may have significant impacts in the following areas:

- Air Quality
- Biological and Cultural Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation and Traffic

The following areas have some impacts that are significant and unavoidable even with mitigation:

- Air Quality
- Transportation and Traffic

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180 Grand Avenue
Suite 1050
Oakland, CA 94612
510.839.5066
www.esassoc.com

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List of Acronyms and Abbreviations

AAC	Architectural Advisory Committee
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ACI	American Concrete Institute
ACM	asbestos containing material
ACP	Asbestos Cement Pipe
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
ADWF	Average Dry Weather Flows
AERMOD	Atmospheric Dispersion Modeling System
af/yr	acre-feet per year
AIA	Airport Influence Area
AISC	American Institute of Steel Construction
ALUC	San Carlos Airport Land Use Commission
ALUP	Airport Land Use Plan
ARB	Air Resources Board
ASF	Age Sensitive Factors
ASCE	American Society of Civil Engineers
BAAQMD	Bay Area Air Quality Management District
BCDC	Bay Conservation and Development Commission
BMP	Best Management Practice or Bicycle Master Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal EPA	California Environmental Protection Agency
CALGreen	California Green Building Standards
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCAA	California Clean Air Act
C/CAG	City/Country Association of Governments for San Mateo County
CCAP	Community Climate Action Plan
CCAT	California Climate Action Team

CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDOF	California State Department of Finance
CDPH	California Department of Public Health
CDMG	California Department of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CHTS	California Household Travel Survey
CIP	Capital Improvement Project
CLUP	San Mateo County Comprehensive Airport Land Use Plan
cm	Centimeter
CMA	Congestion Management Agency
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CNDDB	California Natural Diversity Database
CNPPA	Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CP	Commercial-Office Professional/Technology
CP	Commercial Park
CRHR	California Register of Historic Resources
CTC	California Transportation Commission
CU	Cumulative
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel
DMMO	Dredged Material Management Office
DNL	Day/Night Average Sound Level
DOT	Department of Transportation
DPM	diesel particulate matter
DPR	Department Parks and Recreation

DTSC	Department of Toxic Substances Control
du	dwelling units
DWR	Department of Water Resources
EDD	California Employment Development Department
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ESA	Endangered Species Act
F	Fahrenheit
FAA	Federal Aviation Administration
FAR	Floor-area Ratio
Fed/OSHA	U.S. Department of Labor Occupational Safety and Healthy Administration
FEMA	Federal Emergency Management Agency
ferry service	Water Emergency Transportation Authority
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMPs	Fisheries Management Plans
g	gravity
GBO	Green Building Ordinance
GFL	gutter flow-line
GHG	greenhouse gas
GI	General Industrial
GIS	geographic information systems
gpd	gallons-per-day
gpm	gallons-per-minute
GWP	global warming potential
HAP	Hazardous Air Pollutant
HARP	Hotspots Analysis Reporting Program
HCM	Highway Capacity Manual
HEPA	high efficiency particulate air filter
HFC	hydrofluorocarbon
HMBP	Hazardous Materials Business Plan
HMP	hydrograph modification management plan
HOVs	high-occupancy vehicles
HRA	Health Risk Assessment
HRAC	Historic Resources Advisory Committee
HVAC	heating ventilation and air conditioning equipment
HWCL	Hazardous Waste Control Law
I-280	Interstate 280

IBC	International Building Code
ICLEI	Local Governments for Sustainability (formerly International Council for Local Environmental Initiatives)
IL	Industrial Light
IP	Industrial Port Related
IPM	Integrated Pest Management
IR	Industrial Restricted
ITE	Institute of Transportation Engineers
ksf	thousand square feet
L_{eq}	equivalent sound level
L_{max}	instantaneous maximum noise level
LCFS	Low Carbon Fuel Standards
LEED	Leadership in Energy and Environmental Design
LI	Low-Intensity Industrial
LID	low impact development/design
LOS	level of service
LS	Less than Significant
LTMS	Long Term Management Strategy
M	Richter Magnitude
MBTA	Migratory Bird Treaty Act
MG	million gallons
mgd	million gallons per day
MHW	mean high water
MLLW	mean lower low water
MM	Modified Mercalli
MMPA	Marine Mammal Protection Act
MMRP	Mitigation Monitoring and Reporting Program
mm/yr	millimeters per year
MRP	Municipal Regional Stormwater NPDES Permit
mph	miles per hour
MPO	metropolitan planning organization
MRZs	Mineral Resource Zones
MSA	Magnuson-Stevens Act
MSDS	Materials Safety Data Sheets
msf	million square feet
MT	metric tons
MTC	Metropolitan Transportation Commission
Mw	Moment Magnitude
MXD	Mixed Land Use
N	No Impact
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOx	nitrogen oxides
NOA	Notice of Release/Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
NTR	National Toxics Rule
NWR	Bay National Wildlife Reserve
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHWM	ordinary high water mark
OPR	Office of Planning and Research/also [Oakland] Office of Parks and Recreation
OS	open space
OSHA	Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PDWF	Peak Dry Weather Flow
PeMS	(Caltrans) Performance Measurement Systems
PFC	perfluorocarbon
PG&E	Pacific Gas & Electric
PM	particulate matter
PM2.5	fine particular matter (that is less than 2.5 microns in diameter)
PM10	particulate matter (that is 10 microns or less in diameter)
ppm	part(s) per million
PPV	peak particle velocity
PRC	Public Resources Code
PS	Potentially Significant
PVC	polyvinyl chloride
PWA	Public Works Agency
PWWF	Peak Wet Weather Flow

PYC	Peninsula Yacht Club
RAW	Remedial Action Workplan
RCRA	Resource Conservation and Recovery Act
RCSD	Redwood City School District
R&D	Research and Development
RHNA	Regional Housing Needs Allocation
RMP	Risk Management Plan
RMS	root mean square
ROG	reactive organic gases
ROW	right(s)-of-way
RRFB	Rectangular Rapid Flash Beacons
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
RWS	San Francisco's Regional Water System
S	Significant
SAAQS	State Ambient Air Quality Standards (California)
SamTrans	San Mateo County Transit District
SAR	Second Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SBSA	South Bayside System Authority
SCVWD	Santa Clara Valley Water District
SDC	Seismic Design Category
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
sf	square feet
SFEI	San Francisco Estuaries Institute
SFPUC	San Francisco Public Utilities Commission
SFRWQCB	San Francisco Bay Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SMCEH	San Mateo County Environmental Health
SMDCP	Redwood City Stormwater Management and Discharge Control Program
SMFD	San Mateo County Fire Department
SO2	sulfur dioxide
SSSC	side-street stop controlled
STOPPP	San Mateo Countywide Stormwater Pollution Prevention Program
SU	Significant Unavoidable
SUHSD	Sequoia Union High School District
SVCW	Silicon Valley Clean Water
SVP	Society of Vertebrate Paleontology

SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TAZ	traffic analysis zones
TCMs	transportation control measures
TDM	transportation demand management
TIF	Transportation Impact Mitigation Fee Program
TMDL	Total Maximum Daily Load
TP	Tidal Plain
TRB	Transportation Research Board
TSCA	Toxic Substances Control Act
UCERF3	Uniform California Earthquake Rupture Forecast
ULI	Urban Land Institute
UNFCCC	United Nations Framework Convention on Climate Change
UPRR	Union Pacific Railroad
USCG	United States Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	U.S. Postal Service
UWMP	Urban Water Management Plan
v/c	volume to capacity
VCP	vitrified clay pipe
VMT	vehicle miles traveled
VOC	volatile organic compound
vph	vehicles per hour
VTA	Santa Clary Valley Transportation Authority
VTR	vehicle trip reductions
WBWG	Western Bat Working Group
WDD	Water Dependent Development
WDRs	Waste Discharge Requirements
WETA	Water Emergency Transportation Authority
WQC	Water Quality Certification
WSA	Water Supply Assessment
WSIP	Water System Improvement Program
WSMP	Water Supply Management Program
WSP	Welded Steel Pipe

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CHAPTER 1
Introduction

The City of Redwood City has prepared this Draft Environmental Impact Report (EIR) for the proposed Harbor View Project ("Project"). This Draft EIR has been prepared pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, *et seq*. and Section 15000, *et seq*.) and the state CEQA *Guidelines* (California Code of Regulations) promulgated thereunder (together "CEQA"). CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval of a project (the Lead Agency). The City of Redwood City is the Lead Agency for this EIR.

1.1 Project Overview and Scope of this EIR

This Draft EIR analyzes the potential environmental effects associated with implementation of the proposed Project — an office campus of four office buildings, two parking structures and an employee amenities building. The four proposed office buildings are each approximately 286,187 square feet in size and 100 feet tall (plus mechanical equipment screen), and the proposed amenities building is 45 feet tall and approximately 35,000 square feet, for a total of 1,179,748 square feet of commercial office use and amenities space. The Project proposes up to 3,855 on-site parking spaces, including 40 public spaces. The proposed Project requires an amendment to the City's adopted General Plan and Zoning Ordinance to place the project within a land use designation and zoning that accommodates the proposed uses and development intensity.

The area encompassed by the Harbor View Project is referred to herein as the "Project site," which is located at the southwest corner of the intersection of Seaport Boulevard and Blomquist Street in Redwood City, California. The Project and its site characteristics are described in more detail in Chapter 3, *Project Description*. The potential environmental effects of the proposed Project are evaluated in Chapter 4 of this Draft EIR; see *1.7, Organization of this Draft EIR*, below) for a description of each chapter of this document.

1.2 Environmental Review

1.2.1 Purpose and Use

This EIR is intended as an informational document that in and of itself does not determine whether the Harbor View Project will be approved, but aids the planning and decision-making process by disclosing the potential for significant and adverse impacts. In conformance with CEQA, this EIR provides objective information for the City, other public agency decision-makers, and the public, addresses the environmental consequences of the Project and identifies feasible

ways of reducing or avoiding significant impacts where feasible. CEQA *Guidelines*, Section 15382, defines a significant effect (or impact) on the environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the *project*…." Therefore, to identify the significant impacts of the Project, this EIR concentrates on substantial physical effects and on mitigation measures to avoid or reduce those effects.

The information contained in this Draft EIR is subject to review and consideration by the City of Redwood City and any other responsible agency prior to the City's decision to approve, reject or modify the proposed Project. If the City, as Lead Agency, approves a *project* that will result in the occurrence of significant adverse impacts that cannot be reduced or mitigated to less-than-significant levels, the City must state the reasons for its action in writing, demonstrate that its action is based on the EIR or other information in the record, and adopt a Statement of Overriding Considerations with specific findings.

The CEQA *Guidelines* include guidance for preparation of the EIR, indicating that the document should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (CEQA *Guidelines* Section 15151).

1.2.2 City's Determination to Prepare an EIR

The Redwood City Community Development Department is responsible for administering the environmental review on behalf of the Lead Agency, the City of Redwood City. The City determined that preparation of an EIR was warranted to evaluate potentially significant effects that could result from implementation of the proposed Project. The City elected not to prepare an Initial Study Checklist to reduce the scope of the EIR, as permitted by Section 15060(d) of the CEQA Guidelines.

1.3 Project Analysis

This EIR presents a project-level analysis of the Harbor View Project, which the City identified in its public notice about the scoping and preparation of this EIR (see *1.4, NOP and EIR Scoping*, below). The Project sponsor has provided to the City information about the proposed Project in sufficient detail for a project-level analysis to be conducted. At a project level, the EIR contains detailed analysis to address the effects associated with this individual proposal. CEQA *Guidelines* Section 15161 explains that the project-level analysis in an EIR examines in detail the site-specific and cumulative environmental impacts of a specific development project. To meet CEQA requirements, this EIR presents the project-level analysis for the Harbor View Project, pursuant to CEQA *Guidelines* Section 15161.

1.4 NOP and EIR Scoping

On January 12, 2018, the City of Redwood City issued a Notice of Preparation (NOP), to inform agencies and interested parties of its intent to prepare and distribute a "Draft Environmental Impact Report for the Proposed Harbor View Project." The NOP is included in **Appendix A** to this document and was distributed to governmental agencies, organizations, and persons interested in the Project. The NOP was sent to agencies with statutory responsibilities in connection with the Project and requested their input on the scope and content of the environmental information that should be addressed in the EIR. The NOP also included Notice of Scoping Session during which the public could provide input before the Redwood City City Council.

A public notice regarding the public Scoping Session and the availability of the NOP was published in *The Daily News* on January 12, 2018, and mailed or emailed to interested parties on or before January 12, 2018. The 30-day comment period on the scope of the EIR occurred from January 12, 2018, to February 12, 2018. The City Council conducted the public Scoping Session at its January 22, 2018 regular meeting at the Redwood City Council Chambers.

A summary of written and oral comments that the City received in response to the NOP are also included as Appendix A to this document. Not all of the issues raised in response to the NOP are germane to analysis under CEQA. Where the issues are pertinent to physical effects of the proposed Project on the environment, they are addressed in the relevant section of this EIR.

1.5 Public Review

Upon completion of this Draft EIR, the City filed the Notice of Completion (NOC) with the Governor's Office of Planning and Research (OPR) to begin a public review period (Public Resources Code Section 21161). This Draft EIR is available for public review and comment for the period of at least 45 calendar days, as identified on the Notice of Release/Availability (NOA) of the Draft Environmental Impact Report issued by the City.

During the public review and comment period, written comments on the Draft EIR may be submitted to the City at the address indicated on the notice. Oral comments may be stated at the public hearing on the Draft EIR, which will be held as indicated on the above-referenced notice.

Following the public review and comment period for the Draft EIR, the City will prepare responses that address all written and oral comments on the Draft EIR's environmental analyses and received within the specified review period. The responses and any necessary revisions to the text of the Draft EIR will be prepared as a Response to Comments document. The Draft EIR and its Appendices, together with the Response to Comments document, will constitute a Final EIR (commonly referred to collectively as "EIR") for the Project.

Prior to approval of the Harbor View Project, the City must certify the Final EIR and adopt environmental findings and a mitigation monitoring and reporting program (MMRP) (see below) for mitigation measures identified in this Draft EIR or as modified in the Response to Comments

document. The City Council of Redwood City may take action to approve, revise, or reject the Project, accompanied by written findings in accordance with CEQA *Guidelines* Sections 15091 and 15093.

1.6 Mitigation Monitoring and Reporting Program

An MMRP would be adopted indicating who is responsible for implementation and monitoring of mitigation measures that have been imposed upon the Project to reduce or avoid significant effects on the environment per Section 21081.b(a) of the CEQA Guidelines. The MMRP would be designed to ensure that these measures are carried out during Project implementation, and would be adopted with approval of the Project.

1.7 Organization of this Draft EIR

This Draft EIR is organized as follows, following this **Chapter 1, Introduction**:

Chapter 2, Summary, includes a brief Project description and an overview table of the environmental analysis in the Draft EIR. The overview table lists the environmental impacts, recommended mitigation measures, and the level of significance before and after mitigation. Chapter 2 also summarizes the recurring themes and areas of controversy raised in the EIR Scoping period, and summarizes the Alternatives analysis. Chapter 2 is intended to serve as a stand-alone summary of the Draft EIR.

Chapter 3, Project Description, describes the location and key characteristics of the proposed Project. This chapter also includes a list of the required City approvals and other agencies that may consider aspects of the Project.

Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, starts with an overview of the impact statement and mitigation measure formats and nomenclature; impact classifications; and the overall cumulative analysis approach employed throughout the analyses in Chapter 4. Within Chapter 4 are individual "Sections" for each environmental factor/topic under CEQA.

Each Section presents the *Setting* and *Impact Analysis* for each topic. Cumulative impacts are discussed in each Section (and summarized in Chapter 6). Each Chapter 4 Section lists the significance criteria/thresholds and describes the analysis approach employed. The impact discussions include the significance of each impact, both with and without implementation of mitigation measures.

Chapter 5, Alternatives, describes and evaluates the range of alternatives to the proposed Project, including No Project scenarios, and identifies an environmentally superior alternative, consistent with the requirements of CEQA.

Chapter 6, Impact Overview and Growth Inducement, includes a summary of the cumulative impacts identified throughout Chapter 4. It also describes any growth inducement that would

result from the Project, or related infrastructure improvements; and identifies significant irreversible changes that could result if the Project is implemented. This chapter also summarizes topics that were determined to not be significant and were therefore not discussed in detail in the Draft EIR.

Chapter 7, Report Preparation, identifies the Lead Agency staff and the authors of the Draft EIR. Where applicable, persons and documents consulted during preparation of the Draft EIR are listed at the end of each analysis Section throughout Chapter 4.

Appendices. The NOP and comments received on the scope of the EIR are included in the appendices. The appendices largely include detailed background information that supports certain technical analyses, however, the analyses presented in Chapter 4 do not require the reader to consult information in the appendices to fully understand the existing setting, potential impacts, and effectiveness of the recommended mitigation measures.

References. All documents cited in the References lists at the end of each analysis Section in Chapter 4 of this Draft EIR are available for review by the public upon prior request at the City of Redwood City, 1017 Middlefield Road, Redwood City, CA 94063.

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CHAPTER 2
Summary

2.1 Summary of Proposed Harbor View Project

The City of Redwood City has prepared this Draft Environmental Impact Report (EIR) for the proposed Harbor View Project ("Project").

The Jay Paul Company, the Project sponsor, assembled the 27.08-acre Project site located at the southwest corner of the intersection of Seaport Boulevard and Blomquist Street in Redwood City, California. Highway 101 abuts the south boundary of the Project site. Old Seaport Boulevard generally bounds the Project site on the east, Blomquist Street bounds the Project site on the north, and the west boundary is the new San Mateo County Maple Street Correctional Center (Correctional Center) and railroad spur to the Graniterock operations north of Blomquist Street. Former uses include the Malibu Raceway and Golf Course, building supply and light industrial uses, and a gasoline service station.

The proposed Project is a high tech office campus with four office buildings, two parking structures, and an employee amenities building. Specifically, the Project consists of 1,144,748 square feet of commercial office use, in addition to a 35,000 square-foot amenities building. The four proposed office buildings are each approximately 286,000 square feet in floor area and are seven stories tall (100 feet tall to rooftop; 123 feet to top of rooftop trellis/tower). The proposed amenities building is two-stories tall (30 feet tall to rooftop). The Project also proposes 3,855 automobile parking spaces, the majority of which will be provided in the two parking structures, and 40 surface parking spaces designated for general public uses. The overall Project concept is an office campus centered around an approximately 4-acre green space with a series of landscaped spaces.

The Project site is located within the "Industrial – Light (IL)" and "Industrial – Port Related (IP)" General Plan land use designations. It is located within the "Industrial Restricted (IR)" and "General Industrial (GI)" zoning designations. The Project sponsor has requested a General Plan and Zoning Map Amendment to establish a "Commercial-Office Professional/Technology (CP)" General Plan land use designation and "Commercial Park" (CP) Zoning district for the site to accommodate the proposed office land use and proposed development standards. The Project will also involve approval of a Development Agreement (DA) between the City and the Harbor View Project sponsor, an Architectural Permit, and Tentative Parcel Map.

2.2 Summary of Impacts, Mitigation Measures and Residual Impacts

All impacts and mitigation measures identified in this EIR are summarized in **Table 2-2, Summary of Impacts, Mitigation Measures, and Residual Impacts**, at the end of this chapter. Table 2-2 includes all impact statements, recommended mitigation measures, and the level of significance of the impact after recommended mitigation measures are implemented. Significant and unavoidable impacts identified as a result of the Project address transportation/traffic conditions: intersection delays, freeway segment delays, and freeway ramp capacity— all under both *Existing Plus Project Conditions* and *Cumulative Plus Project Conditions*.

2.3 Summary of Alternatives

Chapter 5 of this Draft EIR presents an analysis of a range of reasonable alternatives to the proposed Project. (CEQA Guidelines Section 15126.6[a] and 15126.6[f]). The alternatives that are analyzed in detail or discussed are listed below:

- **No Project– Existing General Plan (Light Industrial / Building Materials Use**). This alternative represents development that could likely occur on the Harbor View Project site pursuant to the natural course of growth under the existing Redwood City General Plan: 884,704 square feet of light industrial and building material uses.
- **No Project – Existing Zoning (70/30 Research & Development [R&D] Lab + Ancillary R&D Office).** This alternative represents development that could likely occur on the Project site pursuant to the natural course of growth under the existing IR zoning designation, to the extent currently allowed by the General Plan: Development of 70 percent R&D Laboratory (578,076 sq.ft.) and 30 percent R&D Office as an accessory use (247,747 sq.ft.), which equates to the total floor area of 825,823 sq.ft. of mixed R&D uses.
- **Reduced Buildout and Building Height.** This alternative represents development of approximately 67 percent of the square footage of the proposed Project, with reduced building heights: a total floor area of 788,150 sq.ft. of office use.
- **70/30 Office + Ancillary R&D Lab.** This alternative represents development that allows more square footage of regular Office use combined with less R&D Lab use than is allowed by the existing IR zoning designation: Development of regular Office as 70 percent of the overall development (801,323 sq.ft) and R&D Lab as 30 percent of the overall development, in addition to 35,000 sq.-ft. amenities building, which equates to the total floor area of 1,179,748 sq.ft. of mixed office and R&D uses.
- **Alternative Site Location –** This alternative represents development of the proposed Project at a location within Redwood City other than proposed Project site. The comparative analysis assumes that the offsite location would be within the Seaport Boulevard corridor given the lack of feasible sites elsewhere in the City.
- **On-site Public Amenities** – This alternative responds to comments received during scoping of the EIR. This alternative represents development similar to the Project, except with three office buildings (instead of the proposed four) to accommodate a range of one to four publically-accessible, adult soccer fields on one to four acres of the Project site.

Environmentally Superior Harbor View Project Alternative

The "No Project – Existing Zoning" Alternative, and, secondly, the "No Project– Existing General Plan Alternative" both reduce peak-hour traffic trips, and thereby transportation/traffic impacts and are the environmentally superior alternatives. However, since they are both "No Project" scenarios, another "environmentally superior" alternative must be identified.

The "**Reduced Buildout and Height Alternative**" is the CEQA-required environmentally superior alternative to the Harbor View Project. Compared to the proposed Project and the other development alternatives considered in this EIR, the Reduced Building and Building Height alternative would have the greatest reduction in environmental effects. This alternative would:

- develop the smallest project, in terms of total square footage (788,150 sq.ft.);
- generate the fewest AM (809) and PM (881) peak-hour trips and the fewest daily trips (5,959) (except for the No Project alternatives);
- generate the fewest total GHG emissions (6,905 MT CO2e) (except for the No Project – Existing Zoning Alternative); and
- generate the fewest number of employees (3,061) (except for the No Project alternatives).

As a result, this alternative would

- reduce the less-than-significant operational air quality and noise impacts to the greatest extent compared to the proposed Project and the other development alternatives (after the No Project alternatives);
- reduce the degree of most environmental effects pertaining to the physical space occupied by the development; and
- reduce the degree of impacts and service demands generated by project occupants (employees).

2.4 Areas of Controversy Raised in Scoping Comments

As required by the state CEQA Guidelines, the scope of this EIR includes all environmental issues to be addressed and all areas of controversy known to the Lead Agency (Redwood City), by other agencies, organizations, and individuals in response to the City's Notice of Preparation (NOP), dated January 12, 2018. Areas of potential controversy raised by agencies or the public and pertinent to CEQA and planning issues include:

- Aesthetics/Views
- R&D and Biotechnical Use Alternatives
- Transportation and Traffic
- Woodside/US 101 Improvement Considerations

- Jobs to Housing Balance
- Schools Impacts
- Sea level rise affecting Project site access

See **Appendix A** to this Draft EIR for a comprehensive summary of scoping comments, as well as the original correspondence received in response to the NOP.

TABLE 2-2
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.1 Aesthetics		
Impact AES-1: The Project would not have a substantial adverse effect on a scenic vista. (Criterion a). (Less than Significant)	None Required.	
Impact AES-2: The Project would not degrade the existing visual character or quality of the site and its surroundings. (Criterion c). (Less than Significant)	None Required.	
Impact AES-3: The Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Criterion d). (Less than Significant)	None Required.	
Impact AES-4: The Project would not (1) Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors; (2) Cast shadows that substantially impair the beneficial use of shadow-sensitive public open space; (3) Cast shadows that substantially impair the beneficial use of these residential parcels; and could (4) Cast shadows that substantially impair the viability of a sensitive natural habitat. (Criterion e). (Less than Significant)	None Required.	
Impact AES-1.CU: The Project, in combination with cumulative development in the Project vicinity and citywide, would not result in significant cumulative impacts to aesthetics. (Less than Significant)	None Required.	
4.2 Air Quality		
Impact AIR-1: Construction activities associated with the Project would generate fugitive dust and criteria air pollutants, and exceed the BAAQMD significance threshold for construction criteria air pollutant NOx (Criterion b). (Potentially Significant)	**Mitigation Measure AIR-1A:** Implement BAAQMD Basic Construction Mitigation Measures. The Project sponsor shall require construction contractors to implement the following applicable BAAQMD Basic Construction Mitigation Measures to reduce emissions of fugitive dust and equipment exhaust: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.2 Air Quality (cont.)		
Impact AIR-1 (cont.)	• Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	
	Mitigation Measure AIR-1B: Implement BAAQMD additional construction mitigation measures. • The Project sponsor shall require construction contractors to implement the following measures, recommended for projects with construction emissions above significance thresholds to further reduce fugitive dust and exhaust emissions. • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. • Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity. • Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. • The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time. • All trucks and equipment, including their tires, shall be washed off prior to leaving the site. • Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.2 Air Quality (cont.)		
Impact AIR-1 (cont.)	• Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent. • Minimizing the idling time of diesel powered construction equipment to two minutes. • The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. • Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings). • Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM. Compliance with this measure requires that constructors use off-road equipment that have engines that meet or exceed CARB Tier 4 off-road emission standards which have the lowest NOx and PM emissions of commercially available equipment. • Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.	
	Mitigation Measure AIR-1C: Use of Renewable Diesel Fuel during Construction. The Project sponsor shall require construction contractors to ensure that all diesel powered off-road construction equipment shall be fueled with renewable diesel, which has been demonstrated to reduce NOx emissions by approximately 10 percent (Tanikawa, 2015).	Less than Significant
Impact AIR-2: Construction activities associated with the Project would generate toxic air contaminants (TACs), including diesel particulate matter (DPM), but would not expose sensitive receptors to substantial pollutant concentrations (Criterion d). (Less than Significant)	None Required.	
Impact AIR-3: The Project would not create objectionable odors that would affect a substantial number of people during construction (Criterion e). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.2 Air Quality (cont.)		
Impact AIR-4: The Project would not conflict with, or obstruct implementation of the *2017 Clean Air Plan* (Criterion a). (Less than Significant)	None Required.	
Impact AIR-5: The Project would result in emissions of criteria air pollutants, but not at levels that could violate an air quality standard, or contribute to an existing or projected air quality violation (Criterion b). (Less than Significant)	None Required.	
Impact AIR-6: The Project operations would generate toxic air contaminants (TACs), including diesel particulate matter, and carbon monoxide exposure, but would not expose sensitive receptors to substantial air pollutant concentrations (Criterion d). (Less than Significant)	None Required.	
Impact AIR-7: The Project would not create objectionable odors that would affect a substantial number of people (Criterion e). (Less than Significant)	None Required.	
Impact AIR-1.CU: Development of the Project, combined with cumulative development citywide, would result in cumulative air quality impacts (Criterion c). (Significant)	**Mitigation Measure AIR-1.CU:** Implement **Mitigation Measures AIR-1A, AIR-1B,** and **AIR-1C.**	Significant and Unavoidable
4.3 Biological Resources		
Impact BIO-1: The Project could adversely affect, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion a). (Potentially Significant)	**Mitigation Measure BIO-1a:** Noise Impacts from Pile Driving The avoidance and minimization measures specific to pile driving activity, below, have been developed in accordance with the majority of the measures outlined in the 2013 NLAA program[1] criteria, in order to reduce Project effects on sensitive resources. In coordination with the City of Redwood City, a NMFS-approved biological monitor will conduct daily surveys before and during any impact hammer pile driving to inspect the work zone and adjacent waters for marine mammals. The monitor will be present as specified by NMFS during the impact pile-driving phases of construction. If no in-water activity is proposed, biological monitoring would not be required. Avoidance and minimization measures that will reduce Project noise effects, including the following, shall be implemented to the satisfaction of the City: • To the extent feasible all piles (30-inch and 66-inch) will be installed using a vibratory hammer. Vibratory pile installation will be conducted in accordance with the USACE's "Proposed Additional Procedures and Criteria for Permitting Projects Under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California."	Less than Significant

[1] U.S. Army Corps of Engineers Proposed Procedures and Criteria for Permitting Projects Under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species or Critical Habitat

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources		
Impact BIO-1 (cont.)	• Construction-related sound exposure shall be limited to 206 dB peak and 187 dB accumulated SEL for all listed fish weighing two grams or more. Conditions during all pile driving shall be monitored at approximately 33 feet (10 meters) for the first five piles driven or for two full days of pile driving, whichever is greater, to ensure that sound pressure levels comply with the sound thresholds. In the event of use of an impact hammer, or observed exceedance of the sound thresholds, a cushion, bubble curtain, jetting, or other sound attenuation method will be utilized to reduce sound levels. If sound level criteria are still exceeded with the use of attenuation methods, the contractor will revise sound attenuation methods and monitor an additional five piles or for two days of driving, whichever is greater, until demonstration of compliance is obtained, and the demonstrated methods shall be used for the remainder of the pile driving. • If attenuation methods fail to reduce sound levels below NMFS thresholds for marine mammal harassment (160 dB root-mean-square sound pressure level [RMS] or greater for impulse sounds [e.g., impact pile driving] and 120 dB RMS for continuous noise [e.g., vibratory pile driving]), a 1,600-foot (500 meter) open-water safety zone shall be maintained. At the discretion of the resource agencies (USACE and NMFS in particular), the size or configuration of the marine mammal safety zone may change based on the findings of sound attenuation monitoring that will be performed during pile driving. • Work activities shall be halted when a marine mammal enters the 1,600-foot safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes. • A “soft start” technique shall be employed when initiating impact pile driving to provide marine mammals the opportunity to vacate the area. **Mitigation Measure BIO-1b:** Seasonal Avoidance for Aquatic Species This measure applies only to pile driving activities that are performed within aquatic habitat. Pile driving will be conducted within seasonal work windows identified to reduce potential impacts on special-status species (i.e., work will be conducted from June 1 – November 30). If any in-water work is proposed during the Pacific herring spawning or hatching season (December 1 – February 28), a CDFW approved herring monitor will monitor the Project site daily, and at any time when in-water construction activity is taking place. In the event that the on-site monitor detects herring spawning at, or within 200 meters of in-water construction activity, the in-water construction activity will be shut down for a minimum of 14 days, or until the monitor determines that the hatch has been completed and larval herring have left the site. The in-water activity may resume thereafter.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources		
Impact BIO-1 (cont.)	**Mitigation Measure BIO-1c:** Nesting Bird Measures The Project applicant shall conduct pre-construction nesting bird surveys for areas containing, or likely to contain, habitat for nesting birds prior to any bridge construction, tree removal, grading or construction. The City shall require the Project applicant to implement specific measures to avoid and minimize impacts on nesting birds including, but not limited to those described below. • To the extent practicable, construction activities including building demolition, vegetation and tree removal, and new site construction shall be performed between September 1 and January 31 in order to avoid the avian nesting season. If these activities cannot be performed during this period, a preconstruction survey for nesting birds shall be conducted by a qualified biologist. • During the avian nesting season (February 1 through August 31), a qualified biologist shall survey construction areas within and in the vicinity of the Project site for nesting raptors and passerine birds not more than 14 days prior to any ground-disturbing activity or vegetation removal. Surveys shall include all potential habitats within 500 feet (for raptors) of activities and all on-site vegetation including bare ground within 250 feet of activities (for all other species). These buffer distances may also be modified if obstacles such as buildings or trees obscure the construction area from active bird nests, or existing disturbances create an ambient background disturbance similar to the proposed disturbance. • If active nests are found either within the Project site or within the 500-foot survey buffer surrounding the Project site, no-work buffer zones shall be established around the nests in coordination with CDFW. No demolition, vegetation removal, or ground-disturbing activities shall occur within a buffer zone until young have fledged or the nest is otherwise abandoned as determined by the qualified biologist. If work during the nesting season stops for 14 days or more and then resumes, then nesting bird surveys shall be repeated, to ensure that no new birds have begun nesting in the area. • Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW. • Birds that establish nests after construction starts are assumed to be habituated to and tolerant of the indirect impacts resulting from construction noise and human activity. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction. Results of any survey shall be forwarded to CDFW (if results are positive for nesting birds) and avoidance procedures shall be adopted, if necessary, on a case-by-case basis. These may include construction buffer areas (up to several hundred feet in the case of raptors) or seasonal avoidance.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources (cont.)		
Impact BIO-1 (cont.)	**Mitigation Measure BIO-1d:** Protection of Roosting Bats The Project applicant shall take the following steps to avoid direct losses of maternity roosts, winter roosts, or individual bats and indirect impacts to bat breeding success: • Prior to construction or demolition activities within 250 feet of trees/structures with at least a moderate potential to support special-status bats, a qualified biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding with the CDFW allowing the biologist to handle and collect bats) shall survey for bats. If no evidence of bats (i.e., visual or acoustic detection, guano, staining, strong odors) is present, no further mitigation is required. • If bats raising pups are present within 250 feet of the Project site during project construction activities (typically April 15 through August 15), the project sponsor shall create a no-disturbance buffer acceptable in size to the CDFW around the bat roosts. Bat roosts initiated within 250 feet of the Project site after construction has already begun are presumed to be unaffected by project-related disturbance, and no buffer would be necessary. However, the "take" of individuals (e.g., direct mortality of individuals, or destruction of their roost while bats are present) is prohibited. • Trees or buildings with evidence of bat activity shall be removed during the time that is least likely to affect bats as determined by a qualified bat biologist (in general, roosts should not be removed if maternity bat roosts are present, typically April 15 – August 15, and roosts should not be removed if present bats are in torpor, typically when temperatures are less than 40 degrees Fahrenheit). Non-maternity bat roosts shall be removed by a qualified biologist, by either making the roost unsuitable for bats by opening the roost area to allow airflow through the cavity, or excluding the bats using one-way doors, funnels, or flaps. • All special-status bat roosts that are destroyed shall be replaced at a 1:1 ratio with a roost suitable for the displaced species. The roost will be modified as necessary to provide a suitable roosting environment for the target bat species.	
Impact BIO-2: The Project's construction of the Blomquist Bridge crossing of Redwood Creek could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act or state protected wetlands through the direct removal, filling, hydrological interruption, or other means (criterion c). (Potentially Significant)	**Mitigation Measure BIO-2a:** Conduct Wetland Delineation. In coordination with the City of Redwood City, a qualified wetland ecologist shall conduct a wetland delineation of the project site to identify the limits of potential wetlands and other waters within the project study area (i.e., Redwood Creek and associated tidal marsh vegetation, and San Francisco Bay) under the jurisdiction of the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and Bay Conservation and Development Commission (BCDC). Features shall be mapped and documented in a report for submission to the Corps, RWQCB, and BCDC which retains authority over such features within and connected to San Francisco Bay.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources (cont.)		
Impact BIO-2 (cont.)	**Mitigation Measure BIO-2b:** Avoidance and Protection of Jurisdictional Wetlands and Other Waters. Access roads, staging and work areas, and infrastructure [i.e., Blomquist bridge] shall be sited to avoid and minimize direct and indirect impacts to wetlands and waters to the extent feasible. Where work will occur on the project within or adjacent to State and federal jurisdictional wetlands and waters, protection measures shall be applied to protect these features to the satisfaction of the City. These measures shall include the following: • To the maximum extent feasible, conduct work in creek channels and associated tidal marsh vegetation during the dry season (between June 15 and October 15) to avoid construction activities in flowing streams (typically during the spring and winter). Where water features must be disturbed in support of the project (e.g., installation of a coffer dam or other temporary diversions to isolate flow from the work area), the minimum area of disturbance necessary for construction shall be identified, and the area outside of that shall be avoided. • Stabilize disturbed, exposed slopes and creek banks immediately upon completion of construction activities [e.g., following pedestrian bridge(s) construction/installation] to prevent any soil or other materials from entering aquatic habitat. Plastic monofilament of any kind (including those labeled as biodegradable, photodegradable, or UV-degradable) shall not be used. Only natural burlap, coir, coconut or jute wrapped fiber rolls and mats shall be used. • A protective barrier (such as silt fencing) shall be erected around wetland or water features (i.e., San Francisco Bay, Redwood Creek and associated tidal marsh vegetation) to isolate them from project construction activities and reduce the potential for incidental fill, erosion, or other disturbance. A fencing material meeting the requirements of both water quality protection and wildlife exclusion may be used; • Signage shall be installed on the fencing to identify sensitive habitat areas and restrict construction activities beyond fenced limits; • No equipment mobilization, grading, clearing, storage of equipment or machinery, or similar activity shall occur at the project site until a representative of City has inspected and approved the wetland/waters protection fencing; • Ensure that the temporary fencing is continuously maintained until all construction is completed; and • Drip pans and/or liners shall be stationed beneath all equipment staged nearby jurisdictional features overnight to minimize spill of deleterious materials into jurisdictional waters. Equipment maintenance and refueling in support of project implementation shall be performed in designated upland staging areas and work areas, and spill kits shall be available on-site. Maintenance activity and fueling must occur at least 100 feet from jurisdictional wetlands and other waters or farther as specified in the project permits and authorizations.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources (cont.)		
Impact BIO-2 (cont.)	**Mitigation Measure BIO-2c:** Compensation for Impacts to Wetlands and Waters. To offset temporary impacts, restoration to pre-project conditions (typically including contours, topsoil, and vegetation) shall be conducted, as required by regulatory permits (e.g., those issued by the Corps, RWQCB, and BCDC) and to the satisfaction of City. To offset unavoidable permanent impacts to jurisdictional wetlands and waters associated with project fill or shading, compensatory mitigation shall be provided as required by regulatory permits and at a minimum ratio of 2:1 (created/restored/enhanced: impacted). Compensation may include on-site or off-site creation, restoration, or enhancement of jurisdictional resources, as determined by the permitting agencies. On-site or off-site creation/restoration/enhancement plans must be prepared by a qualified biologist prior to construction and approved by the permitting agencies. Implementation of creation/restoration/enhancement activities by the permittee shall occur prior to project impacts, whenever possible, to avoid temporal loss. On- or off-site creation/restoration/enhancement sites shall be monitored by the City or their consultant for at least five years to ensure they successfully meet performance criteria.	
Impact BIO-3: The Project could substantially interfere 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 (Criterion d). (Potentially Significant)	None Required.	
Impact BIO-4: The Project could conflict with the City of Redwood City's Tree Protection Ordinance (Redwood City Municipal Code Chapter 35.3) by removal of protected trees under certain circumstances (Criterion e). (Potentially Significant)	**Mitigation Measure BIO-4:** Tree Protection Measures Adequate protection shall be provided by the Project applicant during the construction period for any trees which are to remain standing and deemed to be potentially endangered by said site work. The Project applicant will adhere to all tree protection measures applicable to the Project outlined in Section 5.0 Tree Protection Measures of the Harbor View Place Arborist Report (2018), which include but are not limited to the following: 1) Before the start of any clearing, excavation, construction or other work on the Project Site, every tree to remain and deemed to be potentially endangered by said site work ('protected tree') shall be securely fenced off at a distance from the base of the tree to be determined by the City's Parks and Recreation Director or Project arborist. This will be considered the Tree Protection Zone (TPZ) and will be consistent with the measures provided in the project's Arborist Report. Such TPZs shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.3 Biological Resources (cont.)		
Impact BIO-4 (cont.)	2) Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the City's Parks and Recreation Director or Project arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree. 3) No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within any protected tree TPZ, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within the TPZ of any protected tree. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree. 4) Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration. 5) If any damage to a protected tree should occur during or as a result of work on the site, the Project applicant shall immediately notify the Parks and Recreation Department of such damage. If, in the professional opinion of the City's Parks and Recreation Director or Project arborist, such tree cannot be preserved in a healthy state, the Director shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Director to compensate for the loss of the tree that is removed. 6) All debris created as a result of any tree removal work shall be removed by the Project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the Project applicant in accordance with all applicable laws, ordinances, and regulations.	
Impact BIO-1.CU: The Project, combined with cumulative development in the Project vicinity, would not result in significant cumulative impacts on special-status species, sensitive habitats, wildlife movement corridors, wetlands, and other waters of the U.S. (Criterion e) (Less than Significant)	None Required.	
4.4 Cultural Resources and Tribal Cultural Resources		
Impact CUL-1: The Project would not result in the physical demolition, destruction, relocation, or alteration of historical resources that are listed in or may be eligible for listing in the federal, state, or local registers of historical resources (Criterion a). (No Impact)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.4 Cultural Resources and Tribal Cultural Resources (cont.)		
Impact CUL-2: The Project could result in significant impacts to unknown archaeological resources *(Criterion b)*. (Potentially Significant)	**Mitigation Measure CUL-2:** Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of Redwood City shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines) or cause a substantial adverse change in the significance of a tribal cultural resource (defined in Public Resources Code Section 21074), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. If preservation in place is feasible, this may be accomplished through one of the following means: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource before building appropriate facilities on the resource site; or (4) deeding resource site into a permanent conservation easement. If avoidance or preservation in place is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with City of Redwood City and, for prehistoric resources, the appropriate Native American representative to recover the scientifically consequential information from and about the resource, which shall be reviewed and approved by the City prior to any excavation at the resource site. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.4 Cultural Resources and Tribal Cultural Resources (cont.)		
Impact CUL-3: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature ***(Criterion c)***. (Potentially Significant)	**Mitigation Measure CUL-3:** Inadvertent Discovery of Paleontological Resources. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Redwood City.	Less than Significant
Impact CUL-4: The Project could disturb human remains, including those interred outside of formal cemeteries (Criterion d). (Potentially Significant)	**Mitigation Measure CUL-4:** Inadvertent Discovery of Human Remains. In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the San Mateo County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Redwood City for the appropriate means of treating the human remains and any grave goods.	Less than Significant
Impact CUL-5: The Project could result in significant impacts to unknown tribal cultural resources (Criterion e). (Potentially Significant)	**Mitigation Measure:** Implement **Mitigation Measure CUL-2**.	Less than Significant
Impact CUL-1.CU: The Project, in combination with cumulative development in the vicinity of the Project site, would contribute to a significant adverse cumulative impact to cultural resources, but the contribution would not be considerable. (Potentially Significant)	**Mitigation Measure CUL-1.CU:** Implement **Mitigation Measures CUL-2, CUL-3, and CUL-4**.	Less than Significant
4.5 Geology and Soils		
Impact GEO-1: The Project would not expose people or structures to seismic hazards such as ground shaking and seismic-related ground failure such as liquefaction, differential settlement, collapse, or lateral spreading (Criteria a.2 and a.3). (Less than Significant)	None Required.	
Impact GEO-2: The Project would not cause soil erosion or loss of topsoil during construction and operation of the project (Criteria b). (Less than Significant)	None Required.	
Impact GEO-3: The Project would not 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 (Criteria c). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.5 Geology and Soils (cont.)		
Impact GEO-4: The Project would not be located on expansive or corrosive soils creating substantial risks to life or property (Criteria d). (Less than Significant)	None Required.	
Impact GEO-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, would not result in significant cumulative impacts to geology, soils or seismicity. (Less than Significant)	None Required.	
4.6 Greenhouse Gas Emissions and Energy		
Impact GHG-1.SP: Construction and operation of development under the Impact GHG-1: The Project would produce greenhouse gas emissions that exceed 1,100 metric tons of CO2e per year, but would not exceed 2020 or 2030 CO2e per service population emission thresholds (Criterion a). (Less than Significant)	None Required.	
Impact GHG-2: The Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions (Criterion b). (Less than Significant)	None Required.	
Impact GHG-3: The Project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources (Criterion c). (Less than Significant)	None Required.	
Impact GHG-4: The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Criterion d). (Less than Significant)	None Required.	
Impact GHG-1.CU: The Project, combined with cumulative development, would result in cumulative impacts regarding GHG emissions and climate change, the but Project's contribution would not be cumulatively considerable (Criteria a and b). (Less than Significant)	None Required.	
Impact GHG-2.CU: The Project, combined with cumulative development citywide, would not conflict with adopted energy conservation plans, violate energy standards, or result in wasteful, inefficient and unnecessary use of energy, such that a cumulative impact would occur (Criteria c and d). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.7 Hazards and Hazardous Materials		
Impact HAZ-1: The Project could create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials (Criterion a). (Potentially Significant)	**Mitigation Measure HAZ-1a:** Prior to the issuance of a grading permit, the Project applicant shall implement the recommendations contained in the Project-specific Phase I Assessment (RPS, 2018) and submit to the City evidence of approval of the Draft Removal Action Workplan (RAW) by the Department of Toxic Substances Control (DTSC) that contains a Site Management Plan (SMP), Health and Safety Plan stamped by a Certified Industrial Hygienist, a voluntary Dust Control Plan/Asbestos Dust Mitigation Plan/Asbestos Air Monitoring Plan, a Waste Transportation Plan, and Construction Quality Assurance Plan. **Mitigation Measure HAZ-1b:** Prior to the issuance of a grading permit, the Project applicant shall record a Land Use Covenant (LUC), in a form approved by the City, that requires that the SMP to be followed during future earthwork activities during and post-development. The LUC shall include conditional language describing when implementation of the SMP will be required for earthwork activities beneath either hardscaped areas or a beneath a specified thickness of clean fill or marker fabric required for non-hardscaped areas. The LUC shall also include language to prohibit the use of groundwater beneath the Project site.	Less than Significant
Impact HAZ-2: Disturbance and release of hazardous structural and building components (i.e., asbestos, lead, and PCBs) with the Project during the demolition phase of construction or transport of these materials would not expose construction workers, the public, or the environment to adverse conditions related to hazardous materials handling (Criteria a). (Less than Significant)	None Required.	
Impact HAZ-3: The Project could 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 (Criterion b). (Less than Significant)	None Required.	
Impact HAZ-4: The Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment (Criterion d). (Potentially Significant)	**Mitigation Measure HAZ-4:** Implement Mitigation Measure HAZ-1 and HAZ-2.	Less than Significant
Impact HAZ-5: Development of the Project would not be located within the airport land use plan for the San Carlos Airport resulting in a safety hazard for people residing or working in the project area (Criterion e). (Less than Significant)	None Required.	
Impact HAZ-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, could contribute considerably to cumulative impacts related to hazards and hazardous materials. (Potentially Significant)	**Mitigation Measure HAZ-1.CU:** Implement Mitigation Measures HAZ-1a and HAZ-1b. [change from HAZ-1 and HAZ-1b]	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.8 Hydrology and Water Quality		
Impact HYD-1: The Project would not violate water quality requirements or waste discharge requirements (Criteria a). (Less than Significant)	None Required.	
Impact HYD-2: The Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (Criteria b). (Less than Significant)	None Required.	
Impact HYD-3: The Project would not potentially alter the drainage pattern of the site such that it would result in substantial erosion or siltation on or off the site (Criteria c and d). (Less than Significant)	None Required	
Impact HYD-4: The Project would not increase runoff and result in flooding on- or off-site (Criteria e). (Less than Significant)	None Required.	
Impact HYD-5: The Project could exceed the capacity of existing or planned stormwater infrastructure (Criteria e). (Potentially Significant)	**Mitigation Measure HYD-5:** Pump Station Infrastructure Prior to issuance of a certificate of occupancy for the Project, the Project sponsor shall install a new redundant duty pump at the Oddstad Pump Station and a new redundant duty pump at the Seaport Pump Station, pursuant to the *Inner Harbor Specific Plan Utilities Engineering Report* prepared by West Yost for the City of Redwood City, April 2015, and new stormwater mains to connect to the Seaport Boulevard Public Station, both in accordance with all applicable City of Redwood City Engineering Standards, to the satisfaction of the City.	Less than Significant
Impact HYD-6: The Project would not place housing within the 100-year flood plain and structures would be elevated within the 100-year flood plain and structures within the 100-year flood plain would be elevated (Criteria g and h). (Less than Significant)	None Required.	
Impact HYD-1.CU: The Project, combined with cumulative development in the vicinity of the Project site, would not result in significant cumulative impacts to hydrology and water quality. (Less than Significant)	None Required.	
4.9 Land Use and Planning		
Impact LU-1: The proposed Project would not result in the physical division of an established community or conflict with adjacent or nearby land uses (Criterion a). (Less than Significant)	None Required.	
Impact LU-2: The proposed Project would not conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect (Criterion b). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.9 Land Use and Planning (cont.)		
Impact LU-1.CU: The Project, in combination with cumulative development in the vicinity of the Project site, would not result in cumulative impacts to land use and planning. (Less than Significant)	None Required.	
4.10 Noise		
Impact NOI-1: Construction activities associated with the Project would result in substantial temporary or periodic increases in ambient noise levels in excess of standards in the Project vicinity (Criteria a and d). (Potentially Significant)	**Mitigation Measure NOI-1:** Throughout demolition, grading and construction, the Project applicant shall require construction contractors to limit standard construction activities as follows: • Consistent with Section 24.32 of the Redwood City Noise Ordinance, construction activities shall be limited to the hours of 7:00 AM to 8:00 PM on weekdays; no construction shall take place at any time on Saturdays, Sundays, and holidays, if the construction generates noise levels exceeding the local ambient noise level measured at any point within a residential area. • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. • Stationary noise sources shall be located as far from adjacent receptors as possible and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.	Less than Significant
Impact NOI-2: Construction activities associated with the Project would not result in exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels in the Project vicinity above levels existing without the Project (Criterion b). (Less than Significant)	None Required.	
Impact NOI-3: Operation of the Project would not create a substantial permanent increase in noise levels in the Project vicinity in excess of standards established in the Redwood City Noise Ordinance and Planning (Criteria a and c). (Less than Significant)	None Required.	
Impact NOI-4: Traffic generated by the Project would not substantially increase traffic noise levels in the Project vicinity and adversely expose existing sensitive receptors (Criterion c). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.10 Noise (cont.)		
Impact NOI-5: Operation of the Project would not result in exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels in the Project vicinity above existing levels without the Project (Criteria b). (Less than Significant)	None Required.	
Impact NOI-1.CU: Traffic generated by development of the Project, in combination with traffic from cumulative development in the Project vicinity and citywide, including past, present, existing, approved, pending and reasonably foreseeable future development; and construction and operational noise levels in combination with traffic from cumulative development would not contribute considerably to cumulative noise impacts (Criterion c). (Less than Significant)	None Required.	
4.11 Population, Housing, and Employment		
Impact POP-1: The proposed Project would not induce substantial population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) (Criterion a). (Less than Significant)	None Required.	
Impact POP-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, would not result in a significant effect to population, housing, and employment. (Less than Significant)	None Required.	
4.12 Public Services		
Impact PSR-1: The Project could result in an increase in calls for police services, but would not require new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives (Criterion 1a.1). (Less than Significant)	None Required.	
Impact PSR-2: The Project could result in an increase in calls for fire protection and emergency medical response services, but would not require new or physically altered fire protection or emergency medical facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives (Criterion 1a.2). (Less than Significant)	None Required.	
Impact PSR-3: The Project could result in new students for local schools, but would not result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, to maintain acceptable performance objectives (Criterion 1a.3). (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.12 Public Services (cont.)		
Impact PSR-4: The Project could increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities (Criterion 1a.4 and 2a.b). (Less than Significant)	None Required.	
Impact PSR-5: The Project could increase the use of existing public library facilities, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities (Criterion 1a.5). (Less than Significant)	None Required.	
Impact PSR-1.CU: The Project, in combination with other cumulative development in the vicinity of the Project site, would not contribute considerably to a cumulative impact to public services and recreation facilities. (Less than Significant)	None Required.	
4.13 Utilities and Service Systems		
Impact UTIL-1: The Project would not exceed the wastewater treatment requirements of the San Francisco Regional Water Quality Control Board or result in a determination that new or expanded wastewater treatment facilities would be required (Criteria a, b and e). (Less than Significant)	None Required.	
Impact UTIL-2: The water demand generated by the Project would not exceed water supplies available from existing entitlements and resources or require or result in the construction of new water treatment facilities or expansion of existing facilities (Criteria b and d). (Less than Significant)	None Required.	
Impact UTIL-3: The Project would require or result in construction of new stormwater drainage facilities or expansion of existing facilities, but the construction of which would not cause significant environmental effects (Criterion c). (Less than Significant)	None Required.	
Impact UTIL-4: The Project would not violate applicable federal, state, and local statutes and regulations related to solid waste; or generate solid waste that would exceed the permitted capacity of the landfills serving the area (Criteria g and h). (Less than Significant)	None Required.	
Impact UTIL-1.CU: The Project, in combination with cumulative projects in the vicinity of the Project site, would not result in cumulative impacts to utilities and service systems. (Less than Significant)	None Required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation		
Intersection Operations – Existing Plus Project (No Blomquist Extension)		
Impact TRANS-1: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Potentially Significant)	**Mitigation Measure TRANS-1:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Impact TRANS-2: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Potentially Significant)	**Mitigation Measure TRANS-2A:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. **Mitigation Measure TRANS-2B:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct geometric changes to the westbound (Middlefield) approach at Woodside Road / Middlefield Road to the satisfaction of the City, including two left-turn pockets of 400 feet, one through lane, and a shared through-right lane pocket of 100 feet.	Significant and Unavoidable
Impact TRANS-3: The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the PM peak hour under Existing Plus Project without Blomquist Extension Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-3A:** Project, the Project applicant shall reconstruct the westbound approach of East Bayshore to accommodate two left-turn lanes with 225-foot pockets, one through lane, and an extended right-turn pocket (from 50 feet to 150 feet). In addition, the applicant shall install a second eastbound right-turn pocket on Blomquist Street. Improvements shall be constructed to the satisfaction of the City. **Mitigation Measure TRANS-3B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-4: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operate at LOS F in the PM peak hour under Existing Plus Project Conditions without Blomquist Extension Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-4:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall install a new actuated traffic signal at the intersection of Seaport Boulevard/Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Intersection Operations – Existing Plus Project (No Blomquist Extension) **(cont.)**		
Impact TRANS-5: The Project would add traffic to intersection #21 Edgewood Road / Alameda de Las Pulgas and would cause this intersection to degrade from acceptable operations of LOS D to unacceptable operations of LOS E in the AM peak hour under Existing Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-5:** Prior to receiving the first certificate of occupancy for the Project, improvements to signal operations shall be made by the Project applicant at the intersection of Edgewood Road/Alameda de Las Pulgas, to the satisfaction of City. The eastbound and westbound (Edgewood Road) signal phasing shall be reprogrammed from split phasing to concurrent permissive phases, allowing for eastbound and westbound through vehicles to travel concurrently. This phasing modification would also change the eastbound and westbound left-turn movements from protected to permissive. Additionally, appropriate signage (E.g. "Left turn yield on green") to support the change shall be added to the eastbound and westbound approaches.	Less than Significant
Impact TRANS-6 The Project would result in the addition of traffic to intersection #1 Veterans Boulevard / Whipple Road and would cause this intersection to degrade from LOS D to LOS E in the AM peak hour under Existing Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-6:** The Project applicant shall install improvements to signal operations at the intersection of Veterans Boulevard/Whipple Road, prior to receiving the first certificate of occupancy for the Project. Green time shall be added to the southbound (Veterans Boulevard) through movement (phase 6) and southbound left-turn movement (phase 1) while the green time for the northbound through movement (phase 2) and northbound left-turn movement (phase 5) shall be reduced during the AM peak hour. The overall cycle length shall be shortened from 125 to 120 seconds	Less than Significant
Impact TRANS-7: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #7) (Criteria a and b). (Potentially Significant)	**Mitigation Measure TRANS-7:** The Project applicant shall contribute its fair share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Impact TRANS-8: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #11) (Criteria a and b). (Potentially Significant)	**Mitigation Measure TRANS-8A:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. **Mitigation Measure TRANS-8B:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct geometric changes to the westbound (Middlefield) approach at Woodside Road / Middlefield Road to the satisfaction of the City, including two left-turn pockets of 400 feet, one through lane, and a shared through-right lane pocket of 100 feet.	Significant and Unavoidable

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Intersection Operations – Existing Plus Project (with Blomquist Extension) (cont.)		
Impact TRANS-9: The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the AM and PM peak hours under Existing Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-9A:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall reconstruct the westbound (East Bayshore Road) approach at the intersection of Blomquist Street/Seaport Boulevard/East Bayshore Road to accommodate two left-turn lanes with 225-foot pockets, one through lane, and an extended right-turn pocket (from 50 feet to 150 feet). In addition, the applicant shall install a second eastbound (Blomquist Street) right-turn pocket. Improvements shall be constructed to the satisfaction of the City. **Mitigation Measure TRANS-9B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-10: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operates at LOS F in the PM peak hour under Existing Plus Project Conditions with Blomquist Extension Conditions. (Criteria a and b). (Significant)	**Mitigation Measure TRANS-10:** Prior to receiving the first certificate of occupancy ro the Project, the Project applicant shall install a new actuated traffic signal at the intersection of Seaport Boulevard/Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Impact TRANS-11: The Project would add traffic to intersection #21 Edgewood Road / Alameda de Las Pulgas and would cause this intersection to degrade from acceptable operations of LOS D to unacceptable operations of LOS E in the AM peak hour under Existing Plus Project Conditions with Blomquist Extension (Criteria a and b). (Significant)	**Mitigation Measure TRANS-11:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall make improvements to signal operations at the intersection of Edgewood Road/Alameda le Las Pulgas to the satisfaction of the City. The eastbound and westbound (Edgewood Road) signal phasing should be reprogrammed from split phasing to concurrent permissive phases. This phasing allows for eastbound and westbound through vehicles to travel concurrently. This phasing modification would also change the eastbound and westbound left-turn movements from protected to permissive. Additionally, appropriate signage (E.g. "Left turn yield on green") to support the change shall be added to the eastbound and westbound approaches.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Freeway Operations – Existing Plus Project (No Blomquist Extension)		
Impact TRANS-12: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard: A. Southbound US 101 north of Whipple Avenue – AM peak hour C. Northbound US 101 south of Woodside Road – AM peak hour (Criteria a and b). (Significant)	**Mitigation Measure TRANS-12A:** Mitigation of the Project contribution to these segments would require construction of an additional mixed flow and/or HOV lane on them. **Mitigation Measure TRANS-12B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-13: The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-13:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the northbound Woodside Road off-ramp and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Intersection Operations – Existing Plus Project (With Blomquist Extension)		
Impact TRANS-14: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard: A. Southbound US 101 north of Whipple Avenue – AM peak hour C. Northbound US 101 south of Woodside Road – AM peak hour (Criteria a and b). (Significant)	**Mitigation Measure TRANS-14A:** Mitigation of the Project contribution to these segments would require construction of mixed flow and/or HOV lane on them. **Mitigation Measure TRANS-14B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-15: The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-15:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the northbound Woodside Road off-ramp and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Other Transportation Issues - Project		
Impact TRANS-16: The Project would not result in hazards regarding site access and circulation (criterion d). (Less than Significant)	None Required	
Impact TRANS-17: The Project would not result in substantial safety risks associated with a change in air traffic patterns (criterion c). (Less than Significant)	None Required	
Impact TRANS-18: The Project would not conflict with adopted transit policies, plans, or programs or decrease the performance or safety of transit facilities (criterion f). (Less than Significant)	None Required	
Impact TRANS-19: The Project would not conflict with adopted bicycle or pedestrian policies, plans, or programs, or decrease the performance or safety of those facilities (criterion f). (Less than Significant)	None Required	
Impact TRANS-20: The Project would not result in inadequate emergency access (criterion e). (Less than Significant)	None Required	
Impact TRANS-21: Construction associated with development of the Project would increase traffic volumes at area intersections and on area freeways, potentially causing temporary increased congestion and/or disruption of vehicle, pedestrian, bicycle and transit circulation (Criterion a and b). (Potentially Significant)	**Mitigation Measure TRANS-21:** The Project applicant shall develop and submit to the City for approval a construction management plans that specifies measures that would reduce impacts of construction-related traffic to motor vehicle, bicycle, pedestrian, and transit circulation. The City must approve the plans prior to issuance of a building permit. Construction management plans shall include the following: • Location of construction staging areas for materials, equipment, and vehicles; • Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur; • Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular, bicycle, and pedestrian traffic, circulation, and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the Project applicant; • Provisions for removal of trash generated by Project construction activity; • A process for responding to, and tracking complaints pertaining to construction activity, including identification of an on-site complaint manager; and • Provisions for pedestrian, bicycle, and transit circulation through the congestion zone, including maintaining pedestrian and bicycle access between the bridge over Redwood Creek and Blomquist Street sidewalks and bike lanes. Implementation of this mitigation measure would improve temporary construction conditions and improve safety for all modes of transportation.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Cumulative Intersection Operations		
Impact TRANS-22: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Significant)	**Mitigation Measure TRANS-22:** Prior to issuance of the first building permit, the Project applicant shall contribute its fair share contribution, as determined by the City to provide additional capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Impact TRANS-23: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Significant)	**Mitigation Measure TRANS-23A:** Prior to issuance of the first building permit, the Project applicant shall contribute its fair share contribution, as determined by the City to provide additional capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. **Mitigation Measure TRANS-23B:** applicant shall implement geometric changes to intersection #10 Bay Road/Woodside Road to the satisfaction of the City. Changes are to convert the eastbound (Bay Road) approach to a left-turn pocket of 100 feet, one through lane, and a shared through-right lane, add a northbound (Woodside Road) through lane, and convert the westbound approach to a right-turn pocket of 250 feet, a left-turn pocket of 250 feet, and three westbound through lanes. Additionally, the overall cycle length shall be optimized while adding protected left-turn phases for both the westbound and eastbound movements. **Mitigation Measure TRANS-23C:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall implement geometric changes to intersection #11 Woodside Road/Middlefield Road to the satisfaction of the City. Changes are to modify the westbound (Middlefield Road) approach to two left-turn lanes with 400-foot pockets, one through lane, and one shared through-right lane with a 100-foot pocket **Mitigation Measure TRANS-23D:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-24: The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the AM and PM peak hours for intersection #1 Veterans Boulevard / Whipple Avenue (Criteria a and b). (Significant)	**Mitigation Measure TRANS-24:** Prior to receiving the certificate of occupancy, the Project sponsor shall implement improvements to signal operations at the intersection of Veterans Boulevard/Whipple Avenue to optimize overall cycle length and adjusting green split timing to the satisfaction of the City.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
***Cumulative Intersection Operations* (cont.)**		
Impact TRANS-25: The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the PM peak hour for intersection #3 Bair Island Road / East Bayshore Road (Criteria a and b). (Significant)	**Mitigation Measure TRANS-25A:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct intersection geometry improvements at Bair Island Road / East Bayshore Road. The geometry improvements are widening the roundabout to two circulation lanes, and changing the westbound approach to one through lane and a 100-foot right turn pocket. In addition, the southbound approach would be widened into two lanes, one left-turn and one right-turn lane. **Mitigation Measure TRANS-25B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-26 The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the AM peak hour for intersection #4 Veterans Boulevard / Maple Street (Criteria a and b). (Significant)	**Mitigation Measure TRANS-26:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall implement geometry improvements to the intersection at Veterans Boulevard / Maple Street by extending the westbound (Veterans Boulevard) left-turn pocket from 150 feet to 200 feet and the eastbound (Veterans) left-turn pocket from 150 feet to 250 feet to the satisfaction of the City. In addition, the applicant shall make signal improvements to optimize overall cycle length and adjust green split timing. Green time shall be added to the eastbound left-turn movement (phase 1), westbound left-turn movement (phase 5), and northbound and southbound through movements (phase 4), while overall cycle length shall extend from 116 second to 160 seconds. Project applicant shall also coordinate with the City to ensure that signal timing changes do not negatively affect adjacent coordinated signals along Veterans Boulevard.	Less than Significant
Impact TRANS-27: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane in the PM peak hour. (Criteria a and b). (Significant)	**Mitigation Measure TRANS-27:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall install a new actuated traffic signal at the intersection at Seaport Boulevard / Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND RESIDUAL EFFECTS

Environmental Impact	Standard Conditions of Approval and Mitigation Measures	Level of Significance after Application of Mitigation, if applicable
4.14 Transportation and Circulation (cont.)		
Cumulative Freeway Operations		
Impact TRANS-28: Under Cumulative Plus Project Conditions, the Project would add traffic volumes representing more than one percent of the segment's capacity to the following freeway segments exceeding their LOS standard and/or capacity without the Project: A. Southbound US 101 north of Whipple Avenue – AM and PM peak hours A. Northbound US 101 north of Whipple Avenue – PM peak hour B. Southbound US 101 south of Whipple Avenue – AM and PM peak hours C. Northbound US 101 south of Woodside Road – AM peak hour D. Southbound US 101 south of Woodside Road – PM peak hour (Criteria a and b). (Significant)	**Mitigation Measure TRANS- 28A:** The Project applicant shall exercise good faith efforts to work with Caltrans and the City to construct an additional mixed-flow and/or HOV lane on US 101 at Whipple Avenue and Woodside Road. **Mitigation Measure TRANS- 28B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.	Significant and Unavoidable
Impact TRANS-29: Under Cumulative Plus Project Conditions, the Project would result in the addition of traffic volumes representing more than five percent of the ramp's capacity to the northbound US 101 Off-Ramp to Woodside Road and southbound US 101 On-Ramp from Woodside Road, which already exceed the ramp capacity in the AM and PM peak hours, respectively under Cumulative Plus Project Conditions (Criteria a and b). (Significant)	**Mitigation Measure TRANS-29:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the Woodside Road ramps and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project. (The US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.)	Significant and Unavoidable
Impact TRANS-30: Under Cumulative Plus Project Conditions, the Project would not result in hazards regarding site access and circulation (Criterion d). (Less than Significant)	None Required.	
Impact TRANS-31: Under Cumulative Plus Project Conditions, the Project would not conflict with adopted bicycle or pedestrian policies, plans, or programs, or decrease the performance or safety of those facilities (Criterion f). (Less than Significant)	None Required.	
Impact TRANS-32: Under Cumulative Plus Project Conditions, the Project would not conflict with adopted transit policies, plans, or programs or decrease the performance or safety of transit facilities (Criterion f). (Less than Significant)	None Required.	
Impact TRANS-33: Under Cumulative Plus Project Conditions, the Project would considerably contribute to inadequate emergency access (Criterion e). (Potentially Significant)	**Mitigation Measure TRANS-33:** Prior to receiving the certificate of occupancy, the Project applicant shall install emergency vehicle pre-emption equipment at the intersection of Maple Street/Veterans Boulevard to the satisfaction of the City.	Less than Significant
Impact TRANS-34: Under Cumulative Plus Project Conditions, the Project would not result in substantial safety risks associated with a change in air traffic patterns (Criterion c). (Less than Significant)	None Required.	

CHAPTER 3
Project Description

3.1 Introduction

3.1.1 Scope of this Project Description

This chapter describes the Harbor View Project that is evaluated in this Draft Environmental Impact Report (EIR), pursuant to CEQA Guidelines section 15124(c). This chapter specifically describes the following existing and proposed characteristics of the Project: location, boundaries, and characteristics of the Harbor View Project site; Project objectives; proposed land uses and development characteristics; circulation and public realm elements; and construction activities. This chapter also describes the jurisdictional approvals required to approve and implement the proposed Project.

3.2 Project Location and Context

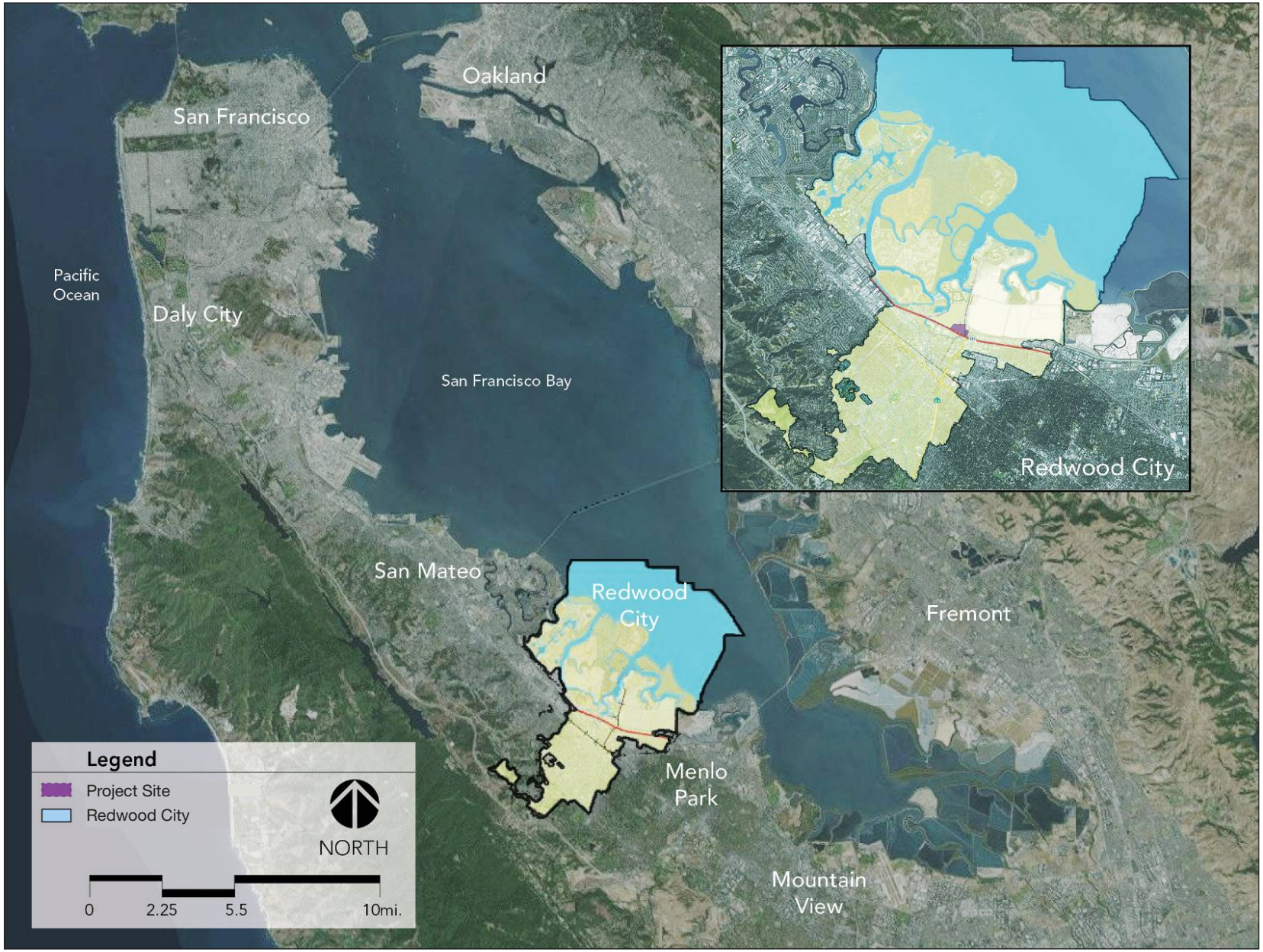
3.2.1 Regional Setting

The City of Redwood City is located in eastern San Mateo County, adjacent to the San Francisco Bay, as shown in **Figure 3-1, Location and Regional Context**. The City is approximately 23 miles southeast of the City of San Francisco, along U.S. Highway 101 / Bayshore Freeway ("Highway 101" or "U.S. 101"), and approximately five miles northwest of the cities of Menlo Park and Palo Alto.[1] Redwood City's boundaries encompass approximately 34 square miles, comprised of 19 square miles of land and 15 square miles of water. The surrounding development and land use context is shown in **Figure 3-2, Project Site and Vicinity**.

3.2.2 Local Setting and Site Boundaries

The Harbor View Project is located at the southwest corner of the intersection of Seaport Boulevard and Blomquist Street in Redwood City, California, as shown in **Figure 3-3, Project Site and Surroundings**. Highway 101 abuts the south boundary of the Project site. Old Seaport Boulevard generally bounds the Project site on the east, Blomquist Street bounds the Project site on the north, and the west boundary is the new San Mateo County Maple Street Correctional Center (Correctional Center) and railroad spur to the Graniterock operations north of Blomquist Street.

[1] Highway 101 is considered the southern boundary of the Project site, and therefore is referenced as running east-west.



SOURCE: ESA, 2018

Harbor View Project . 170951

Figure 3-1
Location and Regional Context

North

SOURCE: ESA, 2018; Google Maps

Harbor View Project . 170951

Figure 3-2
Project Site and Vicinity

North

SOURCE: ESA, 2018

Harbor View Project . 170951

Figure 3-3

Project Site and Surroundings

3.3 Existing Site Characteristics

3.3.1 Existing Uses

The Jay Paul Company, the Project sponsor, assembled the 27.08-acre Project site comprised of seven parcels that previously included the former Malibu Raceway and Golf Course, building supply and light industrial uses, and a gasoline service station, as depicted in Figure 3-3. The Project site is currently vacant, except for a construction office that fronts Blomquist Street.[2]

The Project includes Assessor Parcels, numbered APN 052-392-280; 052-392-370; 052-392-410; 052-392-420; 052-392-460; 052-392-470; 052-392-480; and 052-392-570.

3.3.2 Surrounding Uses

As shown in **Figure 3-4, Proposed Illustrative Site Plan and Surroundings**, the surrounding area includes a mix of open space, commercial, and industrial uses.

Uses East of the Project Site: Open property owned by Pacific, Gas & Electric (PG&E) exists immediately east of the Project site, between the Old Seaport extension and the Highway 101 eastbound on-ramp. Further east, across Seaport Boulevard, are the Cargill salt evaporation ponds.

Uses North of the Project Site: The Graniterock & Peninsula Building Materials and similar building materials business existing immediately north of Blomquist Street from the Project site. Open space, marshlands, Steinberger Slough and the undeveloped area known as the "Ferrari Property" exist north and northeast of those industrial uses. As captured in Figure 3-2, further north is the Seaport Centre commercial office and research and development (R&D) complex, commercial, maritime and industrial uses on the Port of Redwood City property approximately one mile to the north.

Uses West/Northwest of the Project Site: Directly west of the Project site is the new San Mateo County Correctional Center and railroad spur serving Graniterock operations. The area further west and northwest, and shown in Figure 3-3, is primarily open space, outdoor storage, marina, and wetlands located in the "Redwood Creek/Harbor Center" waterfront neighborhood designated in the Redwood City 2010 General Plan. Figure 3-4 shows much of this area as "Future Use"—potential future development and open space improvements not associated with the Project analyzed in this Draft EIR. In July 2018, the City certified an EIR and approved the 1548 Maple Street residential project located approximately 1,000-feet west of the Project site—between Redwood Creek and the future extension of Blomquist Street—both depicted in Figure 3-4.

The Project site is upland of former tidal wetlands (previously converted to upland uses) and Redwood Creek, approximately 500 to 1,000 feet to the north and west, respectively.

[2] Operations on the Project site ceased prior to publication of the NOP for this EIR in January 2018, and most buildings were demolished shortly thereafter.

SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 3-4

Proposed Illustrative Site Plan and Surroundings

Uses South of the Project Site: South of the Project site and Highway 101 (generally the south border of the Project site) is a mix of commercial and R&D uses, beyond which is the downtown area of Redwood City.

3.3.3 Existing General Plan and Zoning

The Project site is located within the "Industrial – Light (IL)" and "Industrial – Port Related (IP)" land use designations.

The Project site also is located within the "Industrial Restricted (IR)" and "General Industrial (GI)" zoning designations. (The intent and descriptions of these land use and zoning designations are presented in Section 4.9, *Land Use and Planning*, in Chapter 4 of this Draft EIR.)

Adjacent areas to the Project site are within the "Mixed-use Waterfront Neighborhood," "Open Space," and "Public Facility" land use designations, and the "Tidal Plain (TP)" and "General Industrial (GI)" zones.

3.3.4 Existing Access, Circulation and Transit

The closest motor vehicle access to the Project site is provided from Highway 101, via the Woodside Road / Seaport Boulevard exit to Blomquist Street. Maple Street, which is west of the Project site and includes a Highway 101 overcrossing, also provides access to the Project site. Existing driveways to the Project site include Stein Am Court cul-de-sac and Lyngso Lane on the east, and several remnant driveways off Blomquist Street.

Existing pedestrian and bicycle facilities exist on Blomquist Street, which has sidewalks nearly its entire length on the south side of the street, along the Project site. Also, adjacent Seaport Boulevard provides a shared use pedestrian and bicycle path. No public bicycle parking is provided nearby. The Project is also considered a part of the *East 101 Fair Share Area* which includes transportation related infrastructure in those areas north of Highway 101 (as Highway 101 is referenced as running east-west in this EIR).

The San Mateo County Transit District (SamTrans), the county-operated bus service, provides one bus route near the Project site: Maple Street and Blomquist Street (Route 270).

3.3.5 Existing Utility Infrastructure

Potable Water: The Project area is currently served by two water mains. One main extends from the Walnut Street cul-de-sac, under Highway 101 along the west side of the Maple Street loop and then extends east through Blomquist Street, where it ties into a pipe in Seaport Boulevard. The second main extends to Blomquist and Maple Streets and extends through Blomquist Street to ties into Seaport Boulevard.

Recycled Water: The Project site is within the adopted Recycled Water Service Area (Inner Harbor Area). The City supplies recycled water to the Project vicinity via an existing recycled water main in Blomquist Street.

Sanitary Sewer: Infrastructure serving the Project site is a gravity main located beneath Maple that joins the main beneath Blomquist Street, which then runs through the Project site and underneath U.S. 101. A force main runs in Seaport Boulevard to Blomquist Street and into the Maple Street Pump Station.

Storm Drainage: The public storm drain system is owned, operated and maintained by the City of Redwood City. The City-owned storm drain infrastructure exists adjacent to the Project in Blomquist Street, north to south through the Project site, and along the westerly property line. Drainage from a portion of the Project site is collected at the Oddstad Pump Station near the southwest corner of the Project site and is pumped through the Project site back underneath Blomquist Street. The other portion of the Project site drains toward Seaport Boulevard and is directed to the Seaport Pump Station. The Project Site is partially within the Federal Emergency Management Agency (FEMA)-designated 100-year flood zone, based on 2012 FEMA map designations. A preliminary (2015) update to the FEMA flood map indicates that the Project site will maintain the same designation.

Dry Utilities: The Project site and surrounding area are served by natural gas main pipelines, broadband service, both above and underground electrical transmission lines. No fiber optic/cable lines currently exist at the Project site.

The Project is also considered a part of the *East 101 Fair Share Area* which includes infrastructure improvements and fair share contributions to develop utility related infrastructure in those areas north of Highway 101 (as Highway 101 is referenced as running east-west in this EIR).

More detailed description of the utility infrastructure on and around the Project area are presented in Section 4.8, *Hydrology and Water Quality,* and Section 4.13, *Utilities and Service Systems,* in Chapter 4 of this Draft EIR.

3.3.6 Existing Site Conditions and Vegetation

The Project site is primarily flat, with undulating areas in the southwestern portion of the site where the former Malibu Raceway and Golf Course existed. Also, areas of the Project site have been identified to have contaminants of potential concern and will require remediation. Detailed discussion of site conditions regarding contaminants is presented in Section 4.7, *Hazards and Hazardous Materials,* in Chapter 4 this Draft EIR.

Mature trees on the site are located mainly along Blomquist Street, the southeast corner of the site, and in the former Malibu facility. Of the 116 mature trees that exist on the Project site, most (57 percent) are considered to have a low suitability for preservation, with few (8 percent) considered health and structurally stable.

3.4 Harbor View Project Characteristics

3.4.1 Site Development

Overview

The proposed Project is a high tech office campus with four office buildings, two parking structures, and an employee amenities building. As shown in **Figure 3-5, Proposed Illustrative Site Plan**, the overall Project concept is an office campus centered around an approximately 4-acre green space with a series of landscaped spaces that collectively cover approximately 36 percent of the Project site. All the Project buildings are connected by a landscaped promenade. **Table 3-1, Proposed Development Program**, summarizes the proposed development program and characteristics.

TABLE 3-1
PROPOSED DEVELOPMENT PROGRAM

Project Characteristic	Total	Unit
Total Project Site Area	27.08 1,179,747	acres sq.ft.
Office Building 1 (7 stories)	286,187	sq.ft.
Office Building 2 (7 stories)	286,187	sq.ft.
Office Building 3 (7 stories)	286,187	sq.ft.
Office Building 4 (7 stories)	286,187	sq.ft.
Total Office Floor Area	**1,144,748**	**sq.ft.**
Amenities Building (2 stories)	35,000	sq.ft.
Total Gross Floor Area	**1,179,748**	**sq.ft.**
Floor Area Ratio[a]	1.0	
Parking Structure A (5 stories/6 levels)	1,400	spaces
Parking Structure B (3 stories/4 levels)	1,699	spaces
Onsite Surface Parking	756	spaces
Total Parking	**3,855**	**spaces**
Site Coverage by All Buildings	394,196 33	sq.ft. percent
Landscaped / Open Space Area (on ground)	36	Percent

[a] Floor Area Ratio (FAR) is total usable floor area divided by total site area, and does not include parking uses.

The proposed Project consists of 1,144,748 square feet of commercial office use, in addition to a 35,000 square-foot amenities building. (The four proposed office buildings are each approximately 286,000 square feet in floor area and are seven stories tall (100 feet tall to rooftop; 123 feet to top of rooftop trellis/tower). The proposed amenities building is two-stories tall (30 feet tall to rooftop).

The Project proposes 3,855 automobile parking spaces, the majority of which will be provided in the two parking structures, with additional surface spaces provided for on-site users, with 40 parking spaces designated for general public use.

A site-wide illustration of the proposed Project is provided in **Figure 3-6, Birdseye View Looking North Across Highway 101**. Illustrations of the interior landscaped areas and buildings, as viewed from within the campus are provided in **Figure 3-7, Interior Campus Views**.

SOURCE: DES Architects + Engineers, 2018

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Figure 3-5

Proposed Illustrative Site Plan

(Note: Highway 101 is considered the southern boundary of the Project site, and therefore is referenced as running east-west in this EIR.)

SOURCE: DES Architects + Engineers, 2018

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Figure 3-6

Birdseye View Looking North Across Highway 101

View of Inner Campus

View of Exterior Lobby

View of Outdoor Amenities

View of Outdoor Amenities

SOURCE: DES Architects + Engineers, 2018

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Figure 3-7

Interior Campus Views

3.4.2 Project Objectives

The Project objectives for the Harbor View Project include:

1) Develop a lively working environment with office uses within the Inner Harbor to promote innovation and creativity.

2) Orient development toward internal open space and allow public access to accommodate bicycle and pedestrian linkages through the Project site toward future public open space near the water. Respect views of the water and hills by maintaining and enhancing key view corridors. Create a day/night environment that is safe and enjoyable for residents, employees, and visitors.

3) Cluster development to provide adequate buffer to adjacent industrial uses.

4) Provide publically-accessible recreation and open space amenities within the Project site, in support of the citywide adopted parkland standard.

5) Insist upon quality architecture, streetscapes, public place improvements, and other "placemaking" features.

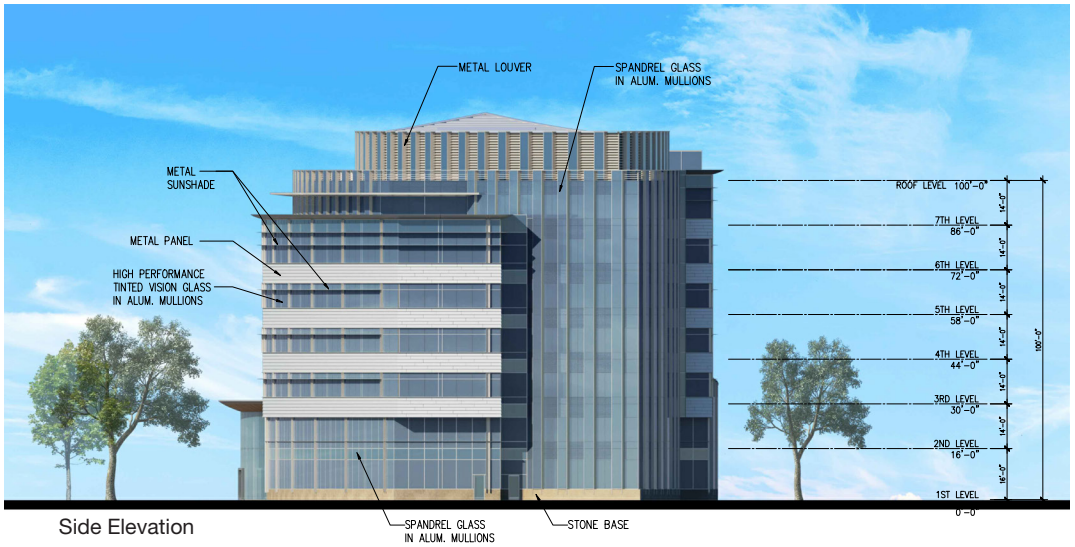
6) Provide for new and improved pedestrian and bicycle paths to facilitate connections between the Project site and Downtown Redwood City contemplated as part of the Woodside/101 improvement plan.

7) Plan for land use and circulation compatibility with adjacent institutional, industrial, and port-dependent uses, through effective building placement, orientation, and screening.

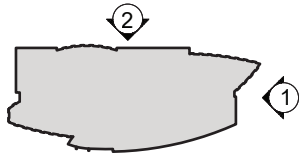
3.4.3 Proposed Buildings

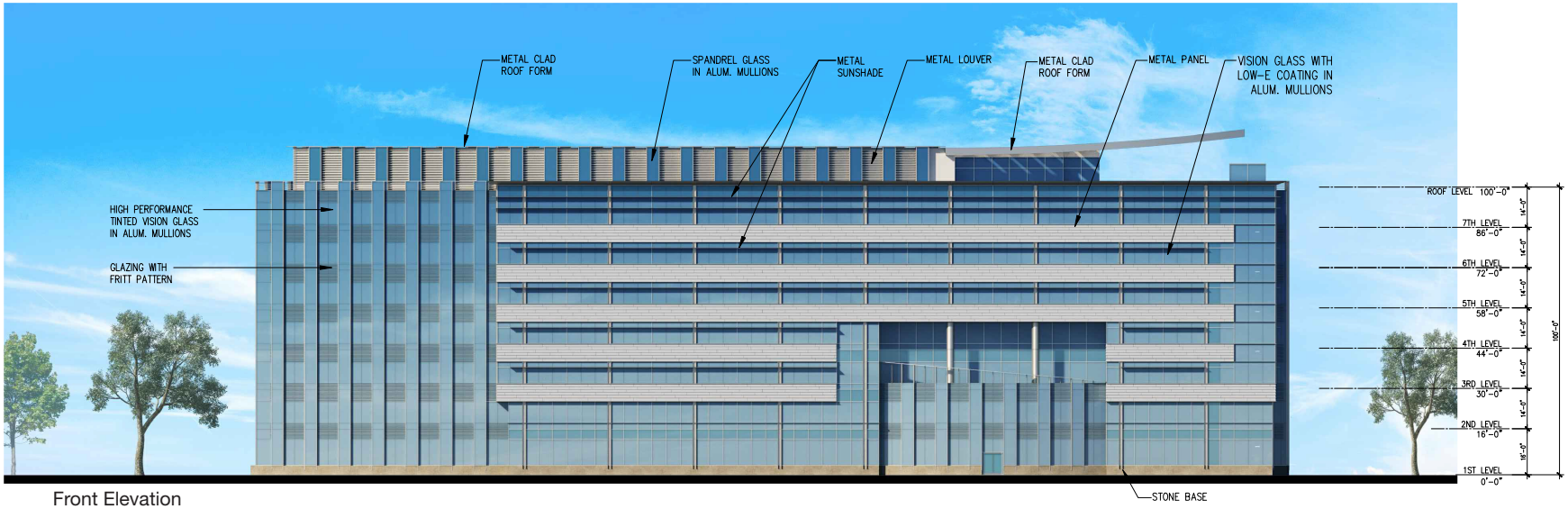
Elevations of the proposed office buildings are shown in **Figure 3-8a, Proposed Office Building Elevations 1 and 2**, and **Figure 3-8b, Proposed Office Building Elevations 3 and 4**. The exterior materials palette includes textured aluminum panels. In addition, the glass areas of the building facades include a blue-green high performance glass with significant texture in the natural aluminum mullion framework. Gently curved mechanical equipment roof screens and penthouse roof areas are clad in textured metal panels. The Project sponsor indicates that the Project will be designed to a LEED silver standard and will meet all new state energy requirements.

Aspects of the proposed building design are consistent with bird safe design guidelines. These included glazing options, building and fenestration strategies, as well as lighting strategies. Each of these considerations is discussed in more detail in Sections 4.1, *Aesthetics*, in Chapter 4 of this EIR. The proposed parking structures have similar design materials and approaches. Elevations of the parking structures are shown in **Figure 3-9a, Proposed Parking Structure A Elevations 1 and 2**, and **Figure 3-9b, Proposed Parking Structure A Elevations 3 and 4**; and **Figure 3-10a, Proposed Parking Structure B Elevations 1 and 2**, and **Figure 3-10b, Proposed Parking Structure B Elevations 3 and 4**. All building and parking structure finished floor elevations will be raised to elevation 14 feet (NAVD88) to accommodate both sea level rise and FEMA flood plain designations for the Project site.



Side Elevation





Front Elevation

SOURCE: DES Architects + Engineers, 2018

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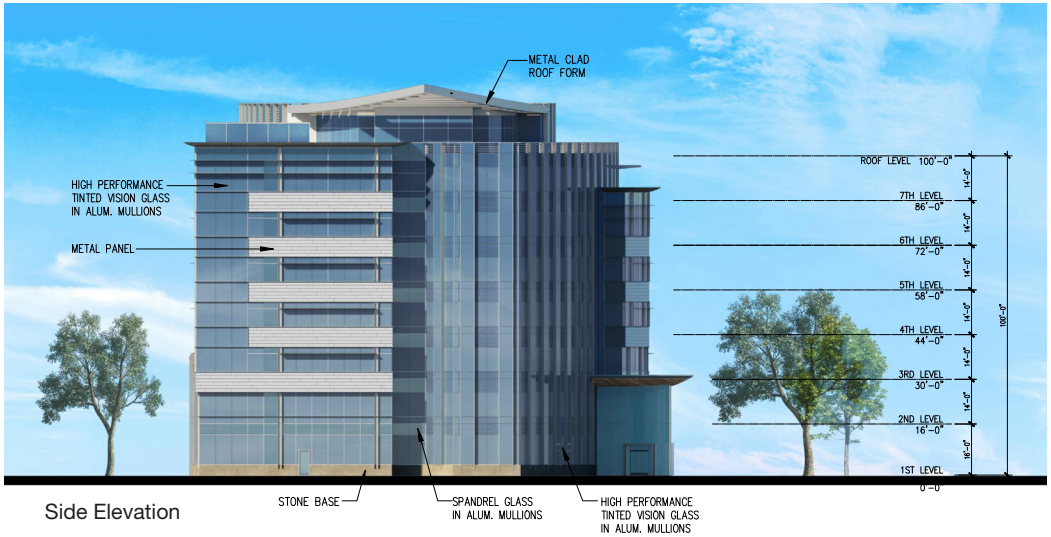
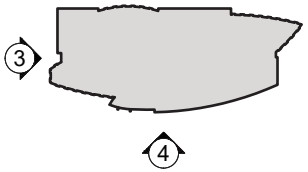
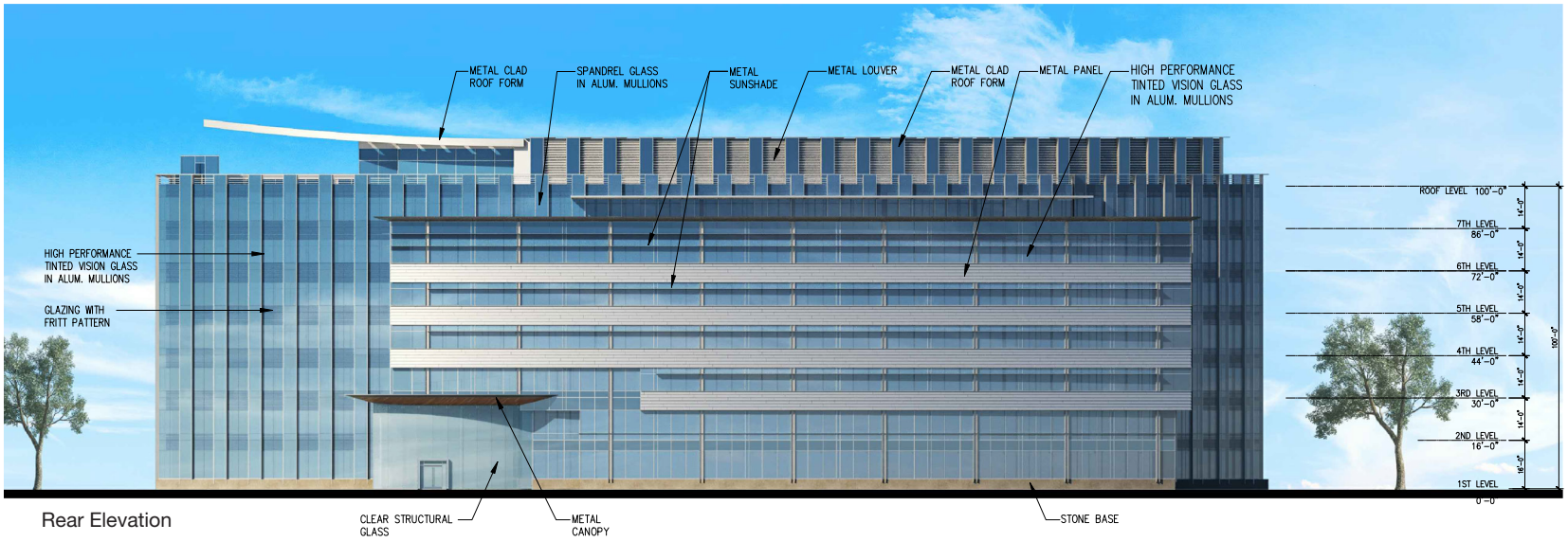
Figure 8a

Proposed Typical Office Building Elevations 1 and 2



Side Elevation





Rear Elevation

SOURCE: DES Architects + Engineers, 2018

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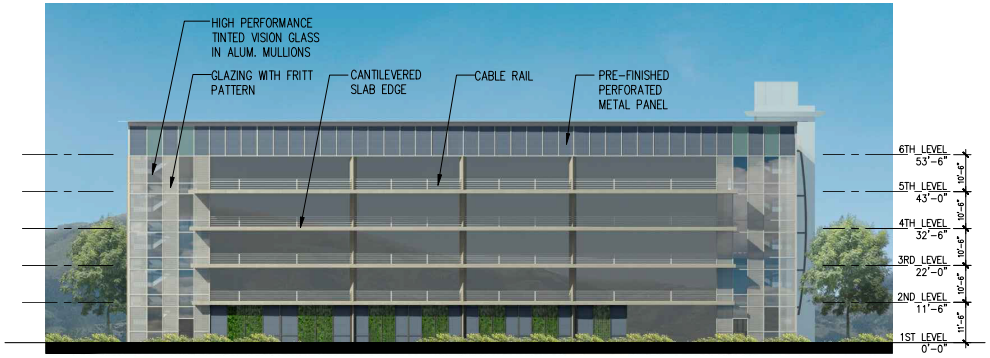
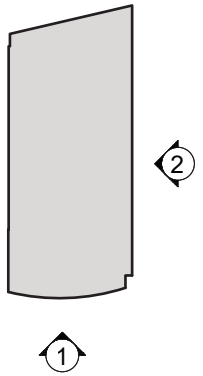
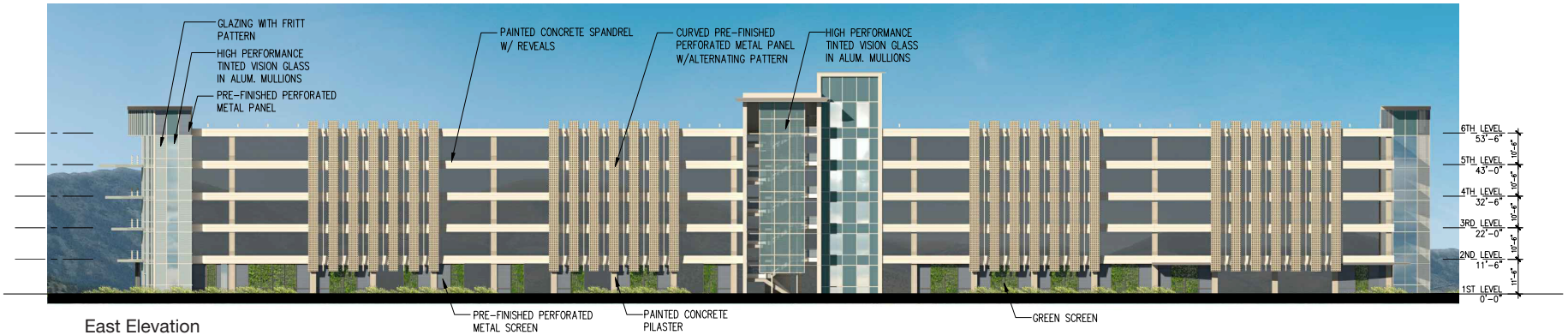
Figure 8b

Proposed Typical Office Building Elevations 3 and 4



South Elevation





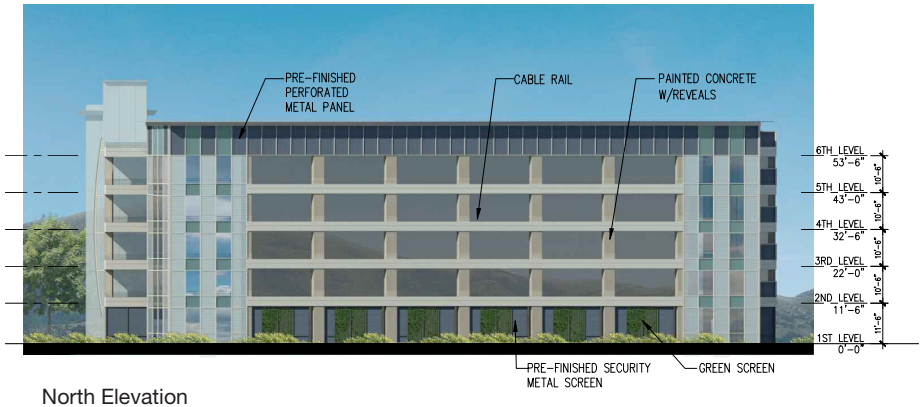
East Elevation

SOURCE: DES Architects + Engineers, 2018

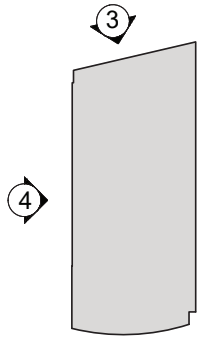
Harbor View Project . 170951

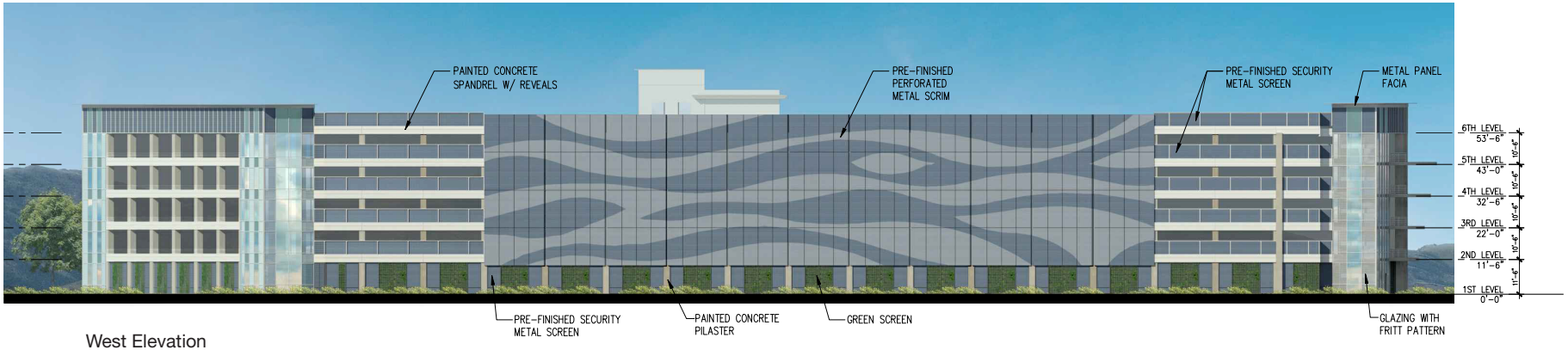
Figure 9a

Proposed Parking Structure A Elevations 1 and 2



North Elevation





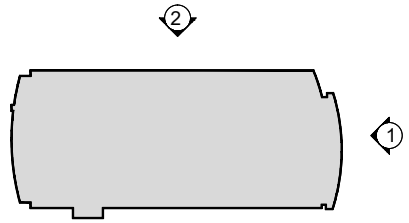
West Elevation

SOURCE: DES Architects + Engineers, 2018

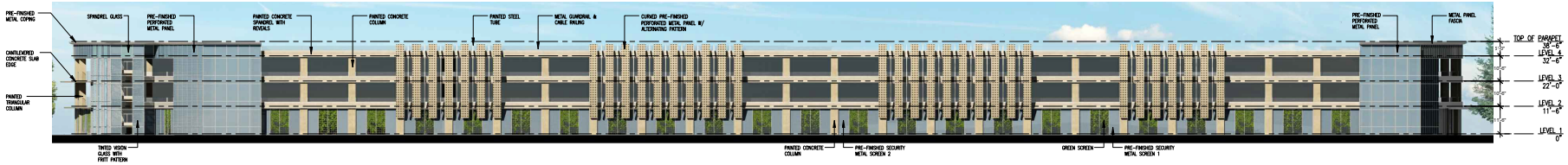
Harbor View Project . 170951

Figure 9b

Proposed Parking Structure A Elevations 3 and 4



East Elevation (Alternate 1 - with Amenities)



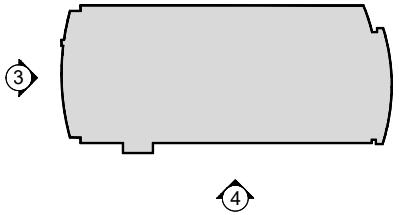
North Elevation (Alternate 1 - with Amenities)

SOURCE: DES Architects + Engineers, 2018

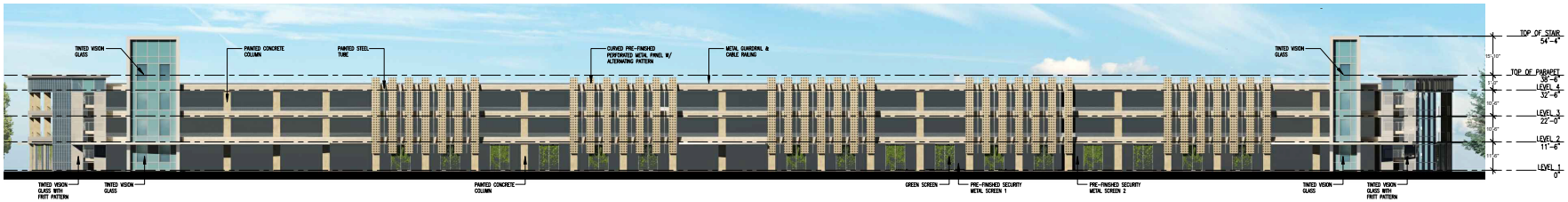
Harbor View Project . 170951

Figure 3-10a

Proposed Parking Structure B Elevations 1 and 2



West Elevation (Alternate 1 - with Amenities)



South Elevation (Alternate 1 - with Amenities)

SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 3-10b

Proposed Parking Structure B Elevations 3 and 4

Elevations and an illustration of the proposed amenities building are shown on **Figure 3-11, Proposed Amenities Building Elevations**. The facility will include play courts (basketball, volleyball, etc.), fitness areas for individual training, as well as rooms for various fitness classes, including spinning and yoga, and a café. The amenities building is intended to reduce peak hour traffic by encouraging employees to arrive early or stay late given the onsite amenities. Therefore, this Project component supports the Project's TDM strategy (discussed below).

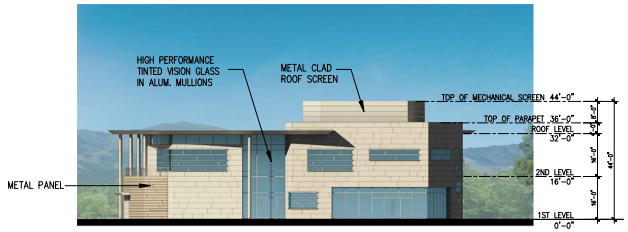
Floor plans of the office buildings, each parking structure, and the amenities building are included in **Appendix B** to this document. **Figure 3-12, Proposed Site Section**, presents a site cross section that conveys the relative heights and locations of the proposed buildings.

3.4.4 Open Space, Landscaping and Buffers

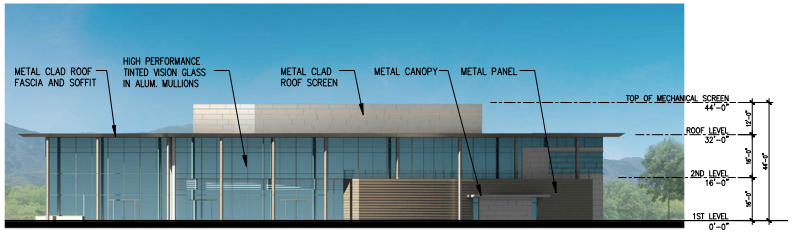
Approximately 36 percent of the Project site would be usable open space. Specifically, 10 percent of the Project site would be reserved for public access use for pedestrian pathways, bicycle paths, seating and landscaping, including stormwater bioretention/infiltration areas and planters. **Figure 3-13, Proposed Landscape Concept Plan**, presents a detailed plan and proposed elements, which is also illustrated in interior campus views in previous Figure 3-7. Landscaped areas are also proposed as part of roof terraces on each of the four office buildings, as shown in **Figure 3-14, Proposed Office Roof Terrace Plan**. The proposed landscaping incorporates approximately 51 existing trees to be retained in-place in areas of the Project site (see section 3.4.11 *Tree Removal and Preservation*).

Figure 3-13 also shows new landscaping proposed for the entire triangular area immediately east of the Project site, between Lyngso Lane, Blomquist Street, Seaport Boulevard and the UPRR easement. The Project would also landscape the entire 41-foot width of UPRR property from the freeway to Blomquist Street, along the east border of the Project site. All landscaped areas associated with the Project are also depicted in the illustrative site plans in previous Figures 3-4 and 3-5.

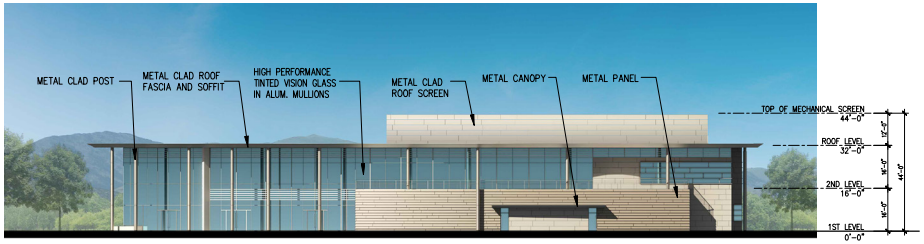
As the site is located immediately adjacent to Highway 101 and directly across Blomquist Street from Graniterock and Peninsula Building Materials, the Project includes significant buffer landscaping (and Parking Structure B) to minimize visual or land use conflicts between the adjacent uses and the proposed Project open spaces and office uses. The Project sponsor also proposes landscaped paths and public usable open space to achieve the incentive-based floor area bonus provided for in the "Commercial Park" (CP) Zoning district (discussed below in section 3.5 *General Plan and Zoning Amendments*). These landscape buffer areas are also depicted in the illustrative site plans in previous Figures 3-4 and 3-5.



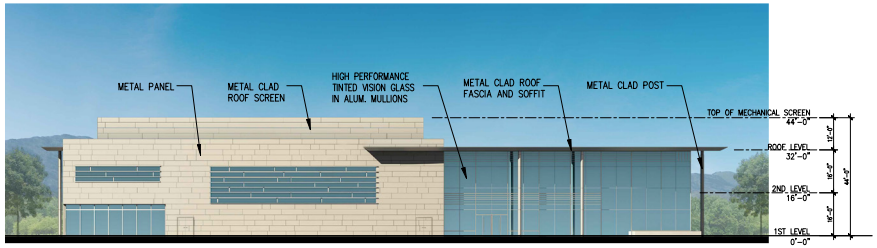
East Elevation



West Elevation



South Elevation



North Elevation

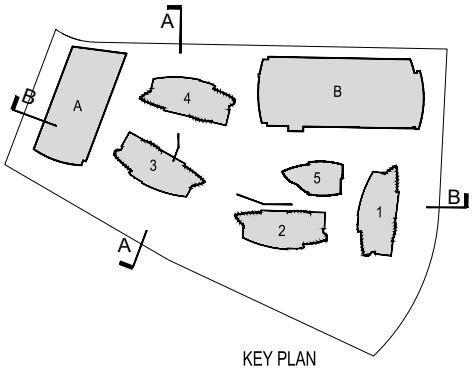
View of Amenities

SOURCE: DES Architects + Engineers, 2018

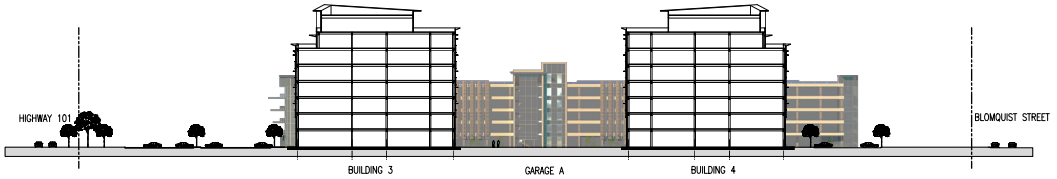
Harbor View Project . 170951

Figure 3-11

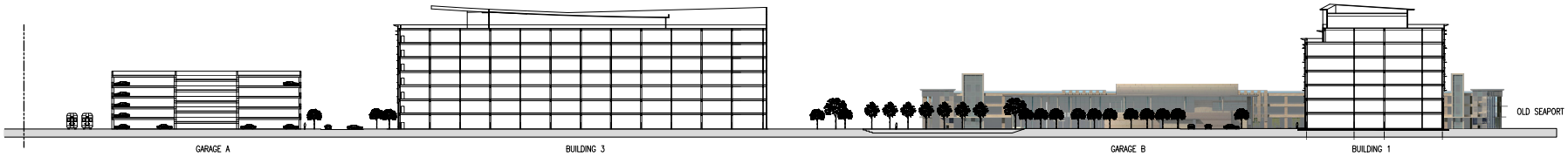
Proposed Amenities Building Elevations



KEY PLAN



Site Section A-A



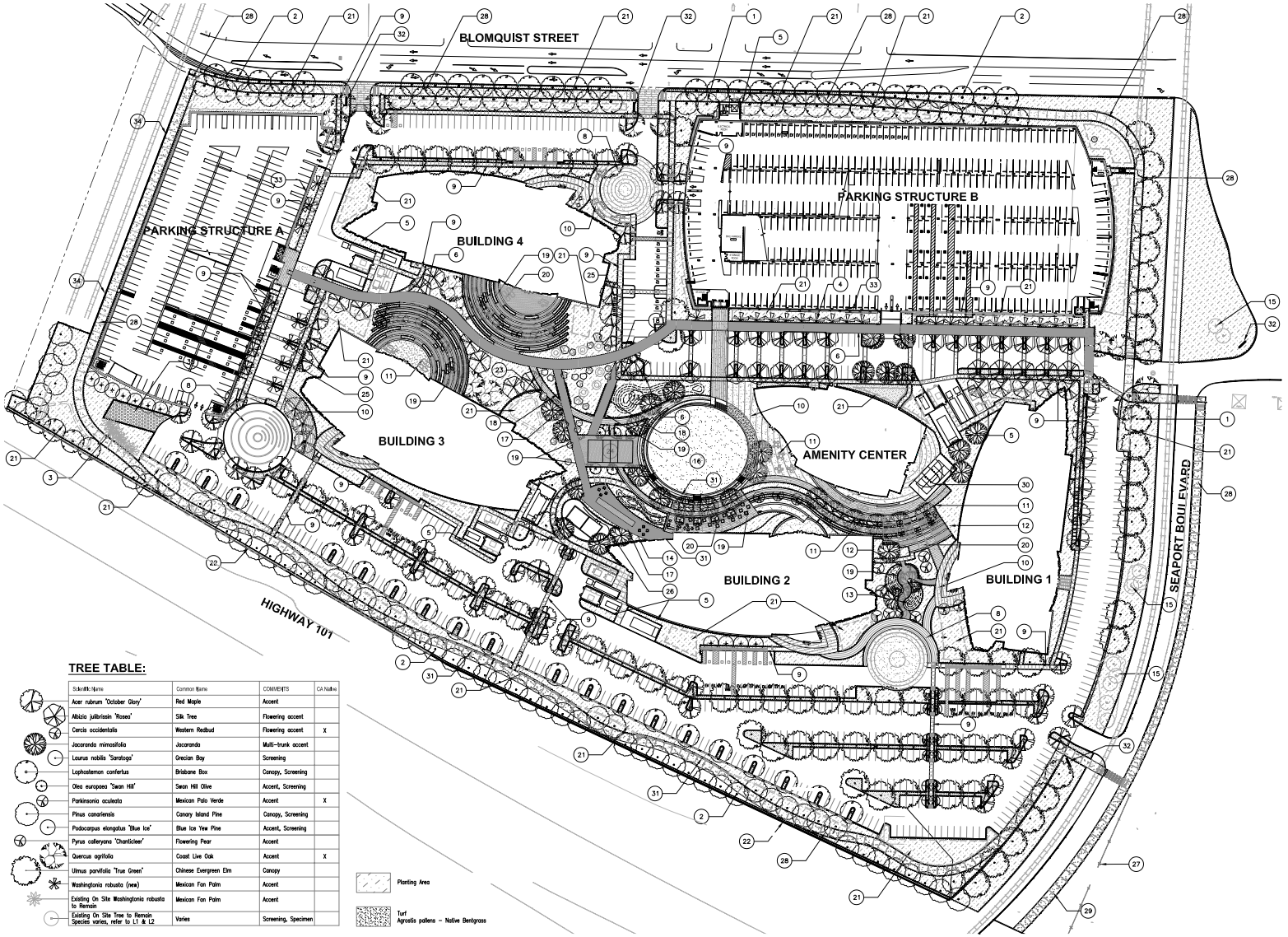
Site Section B-B

SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 3-12

Proposed Site Section



KEY NOTES:

1. STREET TREE
2. SCREENING TREE
3. EXISTING FAN PALM TO REMAIN, REFER TO SHEET L1 & L2
4. NEW FAN PALMS
5. SCREEN TREES AND TALL SHRUBS AT SERVICE AREAS
6. PEDESTRIAN PATH
7. BICYCLE PATH
8. VEHICULAR DROPOFF
9. SCORED CONCRETE WALKWAY
10. ENTRY PLAZA WITH DECORATIVE PAVING
11. CAFE PLAZA WITH DECORATIVE PAVING
12. DECOMPOSED GRANITE PATHS/PAVING
13. BERM
14. BOCCE COURT
15. EXISTING TREES TO REMAIN, REFER TO SHEET L1 & L2
16. TERRACED AMPHITHEATER
17. WOOD DECK
18. WOOD BENCH
19. SEATING AREA
20. OUTDOOR DINING AREA – FUTURE BY OTHERS
21. BIO-RETENTION/INFILTRATION PLANTER. REFER TO CIVIL DWGS.
22. LARGE EVERGREEN SHRUBS FOR SCREENING ALONG HIGHWAY 101
23. BOULDERS
24. SAND VOLLEYBALL COURT
25. BIKE RACK
26. NEW FENCE AT EXISTING PUMP STATION
27. FENCE AT PG&E YARD TO BE RELOCATED OUT OF CITY RIGHT-OF-WAY
28. SHARED BICYCLE PEDESTRIAN PATH
29. SHARED BICYCLE PEDESTRIAN PATH – FUTURE BY OTHERS
30. MULTI-GAME COURT
31. SEATWALL
32. ENTRY SIGN
33. COBBLE BAND ALONG PARKING STRUCTURE
34. RETAINING WALL WITH FENCE
35. TURF BLOCK

TREE TABLE:

Scientific Name	Common Name	COMMENTS	CA Native
Acer rubrum 'October Glory'	Red Maple	Accent	
Albizia julibrissin 'Rosea'	Silk Tree	Flowering accent	
Cercis occidentalis	Western Redbud	Flowering accent	X
Jacaranda mimosifolia	Jacaranda	Multi-trunk accent	
Laurus nobilis 'Saratoga'	Grecian Bay	Screening	
Lophostemon confertus	Brisbane Box	Canopy, Screening	
Olea europaea 'Swan Hill'	Swan Hill Olive	Accent, Screening	
Parkinsonia aculeata	Mexican Palo Verde	Accent	X
Pinus canariensis	Canary Island Pine	Canopy, Screening	
Podocarpus elongatus 'Blue Ice'	Blue Ice Yew Pine	Accent, Screening	
Pyrus calleryana 'Chanticleer'	Flowering Pear	Accent	
Quercus agrifolia	Coast Live Oak	Accent	X
Ulmus parvifolia 'True Green'	Chinese Evergreen Elm	Canopy	
Washingtonia robusta (new)	Mexican Fan Palm	Accent	
Existing On Site Washingtonia robusta to Remain	Mexican Fan Palm	Accent	
Existing On Site Tree to Remain. Species varies, refer to L1 & L2	Varies	Screening, Specimen	

Planting Area

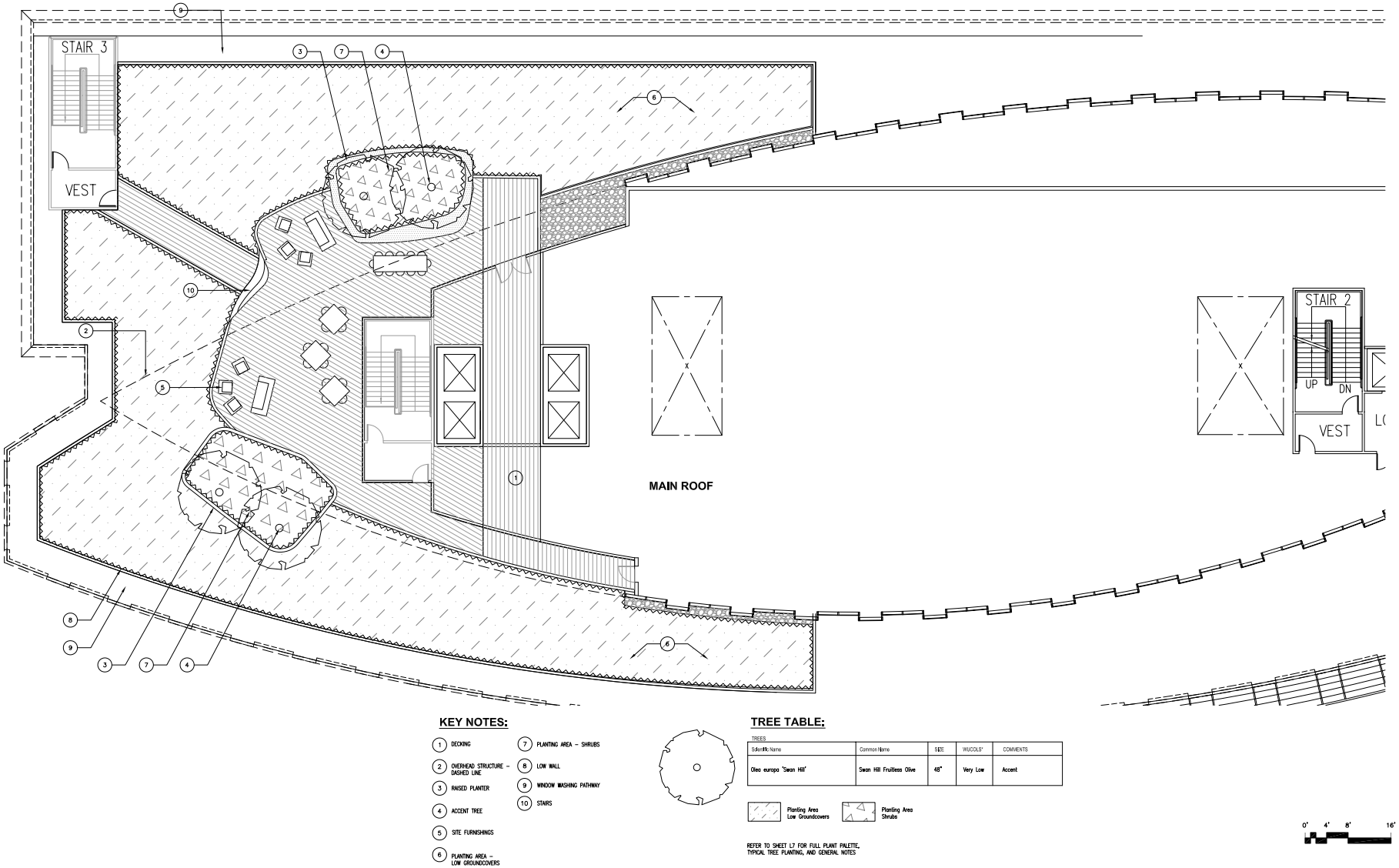
Turf
Agrostis pallens – Native Bentgrass

0' 30' 60' 120'

SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 3-13
Proposed Landscape Concept Plan



SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 3-14

Proposed Typical Office Roof Terrace Plan

3.4.5 Circulation and Access/Egress

Project Site Access

Access to the Project site would be provided from two driveways on Blomquist Street and two driveways from Old Seaport Boulevard. These multiple access points allow for a dispersion of traffic to and from the Project site. The proposed public access open space on the Project site includes direct bicycle and pedestrian access along the southern edge of the site (parallel to Highway 101) and along Old Seaport and Blomquist Street via 40-foot wide landscaped pathways. The proposed bike and pedestrian pathways will connect to the future Chestnut Street undercrossing bicycle path and lead to the waterfront, completing the planned San Francisco Bay Trail segment along Blomquist Street. The proposed new pathways safely segregate bicyclists and pedestrians from truck and car traffic in the area, as well as provide connectivity to the south side of Highway 101 and to Downtown Redwood City.

Access and Circulation Improvements

The Project will contribute to intersection improvements that include at Maple and Blomquist Streets include a traffic circle for traffic utilizing the Maple Street overcrossing to access the Project site. Also, proposed intersection improvements (signal) at Lyngso Lane and Seaport Boulevard are intended to minimize impacts to the existing truck traffic patterns. As part of the Project's proposed community benefits (described below in 3.6 *Community Benefits*), Blomquist Bridge may be constructed over Redwood Creek to the north of the Project site, connecting Maple Street with Bair Island Road. As previously mentioned, the Project site is also considered part of the *East 101 Fair Share Area* which includes transportation related infrastructure in those areas north of Highway 101 (as Highway 101 is referenced as running east-west in this EIR), and therefore will be contributing to its fair share of infrastructure as required by the City of Redwood City.

More detail about vehicular access and egress from the Project site is discussed in Section 4.14, *Transportation and Traffic*, in Chapter 4 of this EIR.

3.4.6 Parking Detail

As detailed in Table 3-1, a total of 3,855 parking spaces are proposed onsite. Parking Structure A will include 1,400 spaces, and Parking Structure B will contain 1,699 spaces, and the additional 756 spaces in onsite surface parking lots includes 40 spaces for public use. The parking required under the Redwood City Municipal Code is one parking space per 300 square feet of office space. The proposed parking meets this requirement and provides 40 additional spaces.[3] (See the parking structure elevations in previous Figures 3-9a and 10a, and Figures 3-10a and 3-10b. Detailed parking level plans are included in Sheets 6A-6B and 8A-8B in Appendix B to this Draft EIR.)

[3] Total 1,144,748 square feet of office area, divided by 300 parking spaces per square foot of office area, which totals 3,815 parking spaces; an additional 40 spaces total 3,855 spaces.

3.4.7 Transportation Demand Management Plan

As required by the Congestion Management Agency for San Mateo County (C/CAG) for all projects that will generate 100 or more new trips during the AM or PM peak hour, the Project sponsor has developed a draft transportation demand management (TDM) plan for the Project. Although, included in this Project Description chapter, the TDM plan is not factored in this Draft EIR as a part of the Project for the purpose of reducing vehicle trips prior to the identification of Project impacts; it is identified as a secondary mitigation measure to reduce intersection operations, as described in detail in Section 4.14, *Transportation and Traffic* of this Draft EIR. The draft TDM plan is included in Appendix F.5 to this Draft EIR.

3.4.8 Utilities and Stormwater

Service Infrastructure

The Project site is currently serviced by all main utility infrastructure. Site development will involve relocation of existing water, stormwater, and sanitary sewer lines that currently run where a new building is proposed. The Project site is also located within the City's recycled water service area; therefore, the Project would connect recycled water to irrigation systems and to dual plumbing installed in the buildings to provide recycled water to non-potable fixtures (i.e. toilets, urinals, hose bibs, etc.). Additionally, the Project will underground all overhead utility lines and remove associated poles both within the Project site and along the Project frontage. As previously mentioned, the Project site is also considered part of the *East 101 Fair Share Area* which includes utility related infrastructure in those areas north of Highway 101 (as Highway 101 is referenced as running east-west in this EIR), and therefore will be contributing to its fair share of infrastructure as required by the City.

Storm Drain Infrastructure Improvements

The Project proposes to relocate approximately 334 linear feet of existing storm drain pipe that exists where a portion of Parking Structure A would be constructed in the southwest area of the Project site (see Figure 3-5), near the existing Oddstad Pump Station. The Project would replace the existing 33-inch storm drain pipe with a 36-inch pipe, designed to maintain at least the same or more storm drain capacity as existing conditions. Other storm drain infrastructure would be installed throughout the site to adequately serve the Project development.

The Project will also be required to upgrade the Oddstad and Seaport stormwater pump stations and construct new stormwater mains in Seaport Boulevard in order to convey the 100-year storm event as outlined in the utility study.

Stormwater Management

The Project would increase the existing area of impervious surface on the Project site from 63 percent to 75 percent. Development of the Project would require adherence to all regulatory requirements, such as implementation of permanent post-construction stormwater Best Management Practices (BMPs) in accordance with the National Pollution Discharge Elimination System (NPDES) regulations, San Mateo Countywide Stormwater Pollution Prevention Program

(STOPPP) requirements and Provision C.3 of the Municipal Regional Permit (MRP). Stormwater runoff from impervious surfaces remaining on the site would be treated using Low Impact Design (LID) measures, including infiltrating runoff into the ground, evaporation, and collecting runoff and using it for non-potable uses. **Figure 3-15, Proposed Conceptual Stormwater Treatment Plan**, delineates areas of stormwater treatment throughout the Project site and along the Project frontage, and as previously mentioned with respect to Figure 3-13, the proposed landscape plan incorporates stormwater bioretention/infiltration areas in addition to vegetated buffers. The Project will be designed to manage and detain stormwater in accordance with the City's Drainage Guidelines for Commercial Development. Detailed assessment of utility demands and infrastructure is provided in Section 4.13, *Utilities and Service Systems*, and more detailed discussion of proposed stormwater management is provided in Section 4.8, *Hydrology and Water Quality,* both in Chapter 4 of this EIR.

3.4.9 Site Clean-up

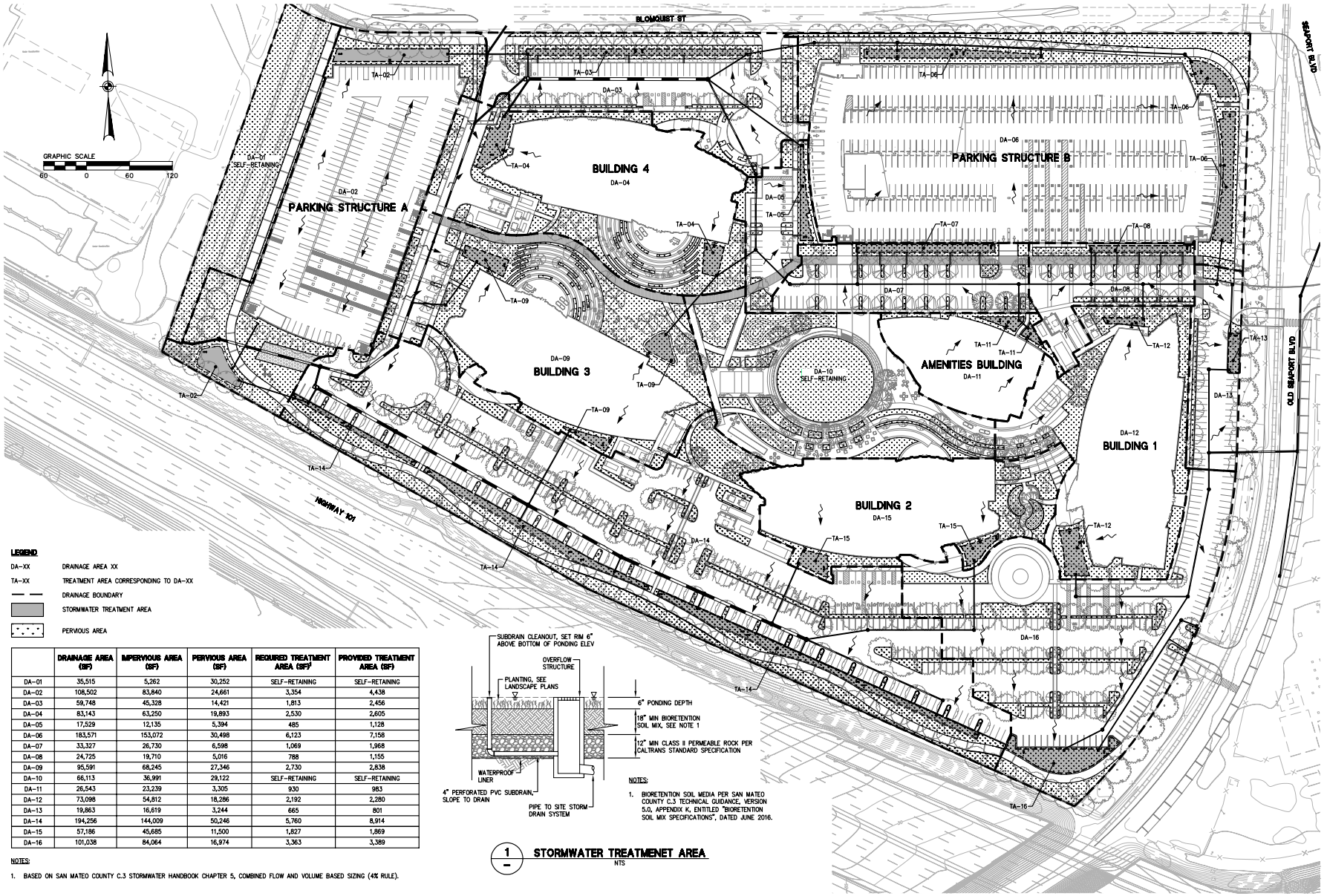
Development of the Project would require the clean-up of existing and potentially residual contaminants identified in certain areas of the Project site, pursuant to a Draft Remedial Action Workplan (RAW) that has been prepared for the site. Activities that would occur prior to and during construction include a combination of excavation, segregation, consolidation, and capping of soils with either hardscape or a certain thickness of clean fill and/or a marker fabric. Soil would be imported to Project site to ensure that the topmost layers of landscaped areas do not have suspected asbestos containing material (see 3.4.11, *Grading, Tree Removal, and Construction*, below).

3.4.10 Grading, Tree Removal and Construction

Demolition, Grading and Off-Haul

The Project would include the demolition of all existing buildings and structures on the Project site and removal and replacement of approximately 15,000 tons of pavement. Approximately 106,000 cubic yards of soils is anticipated to be cut and off-hauled from the Project site to an appropriate location, with approximately 162,000 cubic yards of existing material that would remain for earthwork on the site. In addition, approximately 56,000 cubic yards of soil would be imported to the Project site to achieve the new building finished floor elevations of at least 14 feet (NAVD88) consistent with flooding and sea level rise adaptation, which is four feet added to the 100-year base flood elevation in effect at the time of building permit issuance.

Although the Project site is relatively flat, overall, the central portion of the Project site would experience substantial fill, underneath each building. Areas of cut would occur most around the perimeter of the Project site, namely the southeast corner and along portions bordering Highway 101.



LEGEND

DA-XX	DRAINAGE AREA XX
TA-XX	TREATMENT AREA CORRESPONDING TO DA-XX
— —	DRAINAGE BOUNDARY
	STORMWATER TREATMENT AREA
	PERVIOUS AREA

	DRAINAGE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF)[1]	PROVIDED TREATMENT AREA (SF)
DA-01	35,515	5,262	30,252	SELF-RETAINING	SELF-RETAINING
DA-02	108,502	83,840	24,661	3,354	4,438
DA-03	59,748	45,328	14,421	1,813	2,456
DA-04	83,143	63,250	19,893	2,530	2,605
DA-05	17,529	12,135	5,394	485	1,128
DA-06	183,571	153,072	30,498	6,123	7,158
DA-07	33,327	26,730	6,598	1,069	1,968
DA-08	24,725	19,710	5,016	788	1,155
DA-09	95,591	68,245	27,346	2,730	2,838
DA-10	66,113	36,991	29,122	SELF-RETAINING	SELF-RETAINING
DA-11	26,543	23,239	3,305	930	983
DA-12	73,098	54,812	18,286	2,192	2,280
DA-13	19,863	16,619	3,244	665	801
DA-14	194,256	144,009	50,246	5,760	8,914
DA-15	57,186	45,685	11,500	1,827	1,869
DA-16	101,038	84,064	16,974	3,363	3,389

NOTES:

1. BASED ON SAN MATEO COUNTY C.3 STORMWATER HANDBOOK CHAPTER 5, COMBINED FLOW AND VOLUME BASED SIZING (4% RULE).

NOTES:

1. BIORETENTION SOIL MEDIA PER SAN MATEO COUNTY C.3 TECHNICAL GUIDANCE, VERSION 5.0, APPENDIX K, ENTITLED "BIORETENTION SOIL MIX SPECIFICATIONS", DATED JUNE 2016.

1 — STORMWATER TREATMENET AREA
NTS

SOURCE: BKF, 2018

Harbor View Project . 170951

Figure 3-15

Proposed Conceptual Stormwater Treatment Plan

Tree Removal and Preservation

Of the 119 mature existing trees on the Project site, 68 trees would be removed, largely along the south side of Blomquist Street and the south and southeast areas of the Project site where surface parking is proposed with replacement landscaping. The 51 trees to be retained are notably a cluster of Mexican fan palms on a portion of the previous Malibu Raceway and Golf Course parcel; pines and cedars along the Old Seaport Boulevard; and eucalyptus along the north side of Blomquist Street.

Construction Phasing/Schedule

The Project would be developed in two phases and involve two years of construction. Completion of warm shell buildings (suitable for interior finishings) is estimated for February 2021. Starting in June 2019, construction activities and sequence will involve demolition, site preparation, grading and excavation, trenching, building exteriors, interior architecture, and paving.

3.5 General Plan and Zoning Amendments

The land use and development proposed as the Harbor View Project are not consistent with the land uses or development standards allowed by the City's adopted General Plan and Zoning Ordinance. Therefore, the Project sponsor has requested a General Plan and Zoning Map Amendment to establish a "Commercial-Office Professional/Technology (CP)" General Plan land use designation and "Commercial Park" (CP) Zoning district for the site. The proposed CP designation would provide opportunities for small and large-scale professional offices, office complexes and campuses with a maximum floor area of 1.0 and maximum height of up to 100 feet with a coordinated master plan. Section 4.9, *Land Use and Planning*, in Chapter 4 of this Draft EIR describes the Project's consistency with the existing and proposed General Plan designation and policies and Zoning Ordinance.

3.6 Potential Community Benefits

The City requires developers to include onsite community improvements, and/or to fund benefits to address other community needs when proposing large scale developments, particularly when General Plan amendments are requested. Terms of agreed upon community benefits would be established in a Development Agreement (DA) between the City and the Project sponsor. While this Draft EIR is being prepared, the City is considering Project sponsor's purposed community benefits package, which includes the following potential improvements that may have physical components.

3.6.1 Funding and Construction of Blomquist Bridge

One of the various benefits in the Project sponsor's proposed community benefits package that the City is considering is the funding and construction of a new bridge crossing over Redwood Creek. The new bridge would connect the proposed extension of Blomquist Street (west-northwest of Maple Street, as shown in Figure 3-4) with the existing roundabout at Bair Island

Road west of the Creek. The Blomquist Street extension project is part of the Redwood City Transportation Impact Mitigation Fee Program (TIF).

3.6.2 Financial Contribution to Woodside 101/84 Interchange Improvements

Also included in the Project sponsor's proposed community benefits package is a monetary *contribution* to the Woodside 101/84 Interchange improvements. Contributions (presumably monetary) do not directly affect the physical environment, however, the construction or operation of the specific improvements being funded may have physical effects. The potential environmental effects of construction and operation of the Woodside 101/84 Interchange improvements were previously analyzed and disclosed in a joint CEQA/NEPA document and would not be affected environmentally by further contributions to its design or implementation.[4]

3.6.3 Financial Contribution to Public Park

The Project sponsor's proposed community benefits package that the City is considering also includes a general monetary contribution toward a public park. The park could be developed within any of the areas referred to as "Future Use" in Figure 3-4, but no particular property or improvements have been specified at the time this Draft EIR was prepared. When the City determines how and where to expend the park funding contribution, the City will conduct environmental review to evaluate whether there are impacts under CEQA that would occur from the proposed park development.

3.7 Required Jurisdictional Approvals

3.7.1 City of Redwood City

The Harbor View Project requires the following planning and regulatory approvals by the City of Redwood City, as the Lead Agency:

1) Certification of the project-level CEQA analysis in this EIR, adoption of CEQA findings and a MMRP;

2) Approval of an amendment of the General Plan Map and Zoning Map to adopt and apply a "Commercial Office Professional /Technology (CP)" land use designation and "Commercial Park (CP)" zoning district, respectively, to the Project site.

3) Approval of a Development Agreement (DA) between the City and the Harbor View Project sponsor;

4) Architectural Permit; and

5) Tentative Parcel Map

[4] *Initial Study with Proposed Negative Declaration/Environmental Assessment* (IS/EA) accepted by Caltrans in December 2016.

3.7.2 Other Governmental Agencies

As the Lead Agency and as appropriate under CEQA, the City intends this EIR to serve as the CEQA-required environmental documentation for consideration of this Project by other Responsible Agencies and/or Trustee Agencies that may have limited discretionary authority. Under CEQA Guidelines, the term "Responsible Agency" includes all public agencies, other than the Lead Agency, which have discretionary approval power over aspects of the Project for which the Lead Agency has prepared an EIR. Under CEQA Guidelines, the term "Trustee Agency" means a state agency having jurisdiction by law over natural resources affected by the Project which are held in trust by the people of California.

The City has notified the appropriate Responsible Agencies and Trustee Agencies according to statutory requirements, and they include, but are not limited to, the following:

Local Agencies

- County of San Mateo and associated agencies
- San Mateo County Office of Environmental Health
- Silicon Valley Clean Water (SVCW)

State and Regional Agencies

- California Department of Transportation (Caltrans)
- California Department of Toxic Substances Control (DTSC)
- Bay Area Air Quality Management District (BAAQMD)

3.8 Intended Uses of this EIR

This EIR includes the project-level analysis prepared pursuant to and in accordance with the requirements of Section 15168 of Title 14 of the California Code of Regulations (the "CEQA Guidelines"). It has been prepared to serve as the CEQA-required environmental documentation for use by the City in its consideration, approval, and implementation of the Harbor View Project, including the actions and decisions described in 3.7.1 above, as well as various other actions and approvals by the City and other agencies which may be necessary or desirable to implement the Project.

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CHAPTER 4
Environmental Setting, Impacts, and Mitigation Measures

4.0 Overview of Analysis

This chapter contains the analysis of the potential environmental effects that could result with development of the Project. This chapter starts with an introductory overview for the reviewer (Section 4.0) and then presents the CEQA analysis for each environmental topic (Sections 4.1 through 4.14). Specifically, the introduction in Section 4.0 presents an overview of the scope and organization of the analysis sections, the methods for determining what impacts are significant, and the nomenclature for impact statements and mitigation measures.

4.0.1 Environmental Topics

The following Sections in this chapter analyze the environmental topics listed below and presented in the Table of Contents at the front of this document:

4.1 Aesthetics
4.2 Air Quality
4.3 Biological Resources
4.4 Cultural Resources and Tribal Cultural Resources
4.5 Geology and Soils
4.6 Greenhouse Gas Emissions and Energy
4.7 Hazards and Hazardous Materials
4.8 Hydrology and Water Quality
4.9 Land Use and Planning
4.10 Noise
4.11 Population, Housing, and Employment
4.12 Public Services and Recreation
4.13 Utilities and Service Systems
4.14 Transportation and Traffic

Agricultural Resources and Mineral Resources were determined not to be directly relevant to development of the Harbor View Project and are briefly discussed in Chapter 6 under *Effects Found Not to Be Significant*.

4.0.2 Impact Analysis

Effects of the Environment of the Project

This EIR addresses impacts of the Project on the existing environment pursuant to CEQA. Potential effects of the environment on a project may not be legally required to be analyzed or mitigated under CEQA, although the CEQA *Guidelines* include certain significance criteria that pertain to the effect of the environment on a project. The latter may include thresholds related to

air quality (e.g., locating sensitive receptors near an existing source of air pollution), geology (e.g., locating a new structure in a seismic hazard zone), hydrology (locating housing in flood-risk areas), and noise (e.g., locating a noise-sensitive uses on existing noisy conditions), among others.

A growing number of court cases have supported the position that CEQA is concerned with the effects of a project on the environment and not the effects of the environment on a project. Most recently, the California Supreme Court's *CBIA v. BAAQMD* decision[1] has indicated that the impact of existing environmental conditions on a project's future users or residents are generally not required to be considered in a CEQA evaluation, except when the project may exacerbate existing hazards or existing conditions. This EIR addresses potential impacts of the environment on the Project caused by the existing environment to provide information to the public and decision-makers of the Project.

Environmental Baseline

The environmental baseline identifies the existing physical conditions on, around, and affecting the Project site. The baseline is established to provide a point of comparison between pre-Project conditions (the baseline) and post-Project conditions to determine whether the change to the existing environment caused by the Project is significant under CEQA. Overall, pursuant to Section 15125(a) of the CEQA *Guidelines*, this EIR measures the physical impacts of the Project, against a "baseline" of combined circumstances, policy and planning context, and physical conditions at and in the vicinity of Project site as they existed generally at the time the NOP for the Project was published, January 12, 2018 CEQA *Guidelines* Sections 15125[a], 15126.2[a]). For environmental topics that required alternative baseline assumptions, that circumstance is described as part of the analysis.

4.0.3 Format and Approach of Analysis Sections

Presentation of the Analysis

Each environmental topic Section (4.1 through 4.14) presents the analysis of the Project. Overall, each analysis Section includes the following main subsections:

- ***Existing Setting***, which includes the existing environmental setting and regulatory setting, which includes applicable plans and policies relevant to the Project;
- ***Significance Criteria,*** which identifies the significance criteria and applicable thresholds for the particular environmental topic being addressed. This section also discusses the analysis approach employed.

[1] *California Building Industry Association v. Bay Area Air Quality Management District,* 218 Cal.App.4th 1171 (2015). In the decision, the Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment – and not the environment's impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

- ***Impacts and Mitigation Measures***, which presents the potential direct and indirect impacts of the proposed Project pursuant to the significance criteria, and, where applicable, recommended mitigation measures to reduce impacts to less than significant, where feasible.

  The cumulative impact analysis follows the project-level analysis in each Section. Overall, the impacts analysis addresses all parts of the Project action: construction and operations, project-related and cumulative, and where applicable, secondary impacts resulting from the implementation of recommended mitigation measures.

Impact Statements and Mitigation Measure Designators

This EIR identifies all impacts with an abbreviated designation that corresponds to the environmental topic addressed (e.g., "HAZ" for hazardous materials). The topic designator is followed by a number that indicates the sequence in which the impact statement occurs within the section. For example, "Impact HAZ-1" is the first (i.e., "1") hazardous materials impact identified in the EIR.

Similarly, each mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address the same impact, each mitigation measure is numbered sequentially. For example, "Mitigation Measure HAZ-1b" would be the second ("i.e., "b") measure identified to address Impact HAZ-1.

All impact statements and mitigation measures designators are presented in bold text.

Thresholds/ Significance Criteria

This EIR applies the significance criteria identified in the CEQA Guidelines for determining the significance of environmental effects, including CEQA *Guidelines* Sections 15064, 15064.5, 15065, 15382, Appendix F, and Appendix G[2].

Impact Classifications

The following level of significance classifications are used throughout the impact analysis in this EIR:

- **Less than Significant (LS) –** The impact of the Project does not reach or exceed the defined significance threshold. No mitigation measure is required for a LS impact.
- **Significant (S)** – The impact of the Project reaches or exceeds the defined significance threshold, which is typically quantitative so the significance can be confirmed in this document. Feasible mitigation measures may or may not be identified to reduce the significant impact to a LS impact.
- **Significant Unavoidable (SU)** – The impact of the Project is S, but no feasible mitigation measure is available to reduce an impact to LS. In these cases, feasible mitigation measures may be identified to reduce the S impact to the maximum feasible extent, but the S impact is

[2] Although no Environmental Review Checklist was prepared for this EIR, the factors listed for consideration in the Environmental Review Checklist are evaluated in this EIR.

ultimately considered SU, as it is "unavoidable." SU is an impact classification that only applies *after* consideration of possible mitigation measures.

Impacts are also conservatively classified as SU if a feasible mitigation measure is identified that would reduce the impact to LS, but the approval and/or implementation of the mitigation measure is not within the Lead Agency's or the Project sponsor's sole control, in which case the analysis cannot presume implementation of the mitigation measure and the resulting LS impact.

- **No Impact (N)** – No noticeable adverse effect on the environmental would occur. This determination is typically made with certainty without extensive consideration based on available evidence.

The level of impact prior to the consideration of mitigation measures is stated in parentheses at the end of the bold impact statement. If applicable, the level of impact after the implementation of mitigation measures is stated at the end of the discussion for each impact.

4.0.4 Cumulative Analysis

Approach

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

Cumulative Context

Geographic Scope

The context used for assessing cumulative impacts typically varies depending on the topic being analyzed. For example, considerations for the cumulative air quality analysis are different from those used for the cumulative analysis of aesthetics. This is because only development within the vicinity of the Project could contribute to a cumulative visual effect, whereas all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining air quality-related cumulative effects. Accordingly, the geographic setting and other parameters of each cumulative analysis discussion can vary.

Cumulative Land Use and Infrastructure Assumptions

The cumulative land use assumptions include Association of Bay Area Government's (ABAG's) population and employment (i.e. land use) projections for year 2040, with refinements as needed in

the vicinity of the Project to reflect under construction, approved, and pending development projects in Redwood City. Major land use developments contributing to the cumulative conditions in the vicinity include the recently constructed County Replacement Jail Facility, ongoing development in the Downtown Redwood City Precise Plan, such as the mixed use development at 1401 Broadway; also, the recently-approved 1548 Maple Street residential project, 851 Main Street mixed use development, and the County Government Center Office Building #3. These projects are listed on the City's roster of all developments under construction, approved, or proposed in the City as of July 2018; the roster is shown in **Table 4.0-1, Cumulative Context Projects List,** below. As indicated in Table 4.0-1, some projects on the list were assumed within the regional land use projections and constitute part of the "background" in the transportation model. Others were factored into the model as explained below.

Cumulative conditions established for the traffic analysis in this EIR represent projected conditions in 2040, including traffic estimates for probable future developments and selected roadway system improvements. The joint Santa Clara Valley Transportation Authority (VTA) and City/County Association of Governments of San Mateo County (C/CAG) travel demand model (VTA-C/CAG model) was used to develop forecasts for this study (which includes the regional projections and the cumulative project list in Table 4.0-1).[3] The 2040 cumulative scenario also considers roadway networks Tier 1 improvements in the Regional Transportation Plan (RTP) for San Mateo County and in Redwood City's TIF program, as described in detail in Section 4.14, *Transportation and Traffic*. The VTA-C/CAG model has a base year of 2013 and land use inputs were developed by interpolating between MTC's year 2010 travel demand model and ABAG's year 2015 projections.

[3] The projects listed in Table 4.0-1 reflect the land use assumptions factored into the countywide traffic modeling for the US 101/SR 84 (Woodside Road) Interchange Project underway concurrent with the technical studies for this EIR. Overall, the list includes the major projects in proximity to the Project site.

TABLE 4.0-1
CUMULATIVE CONTEXT PROJECTS LIST AS OF JULY 2018

Project	Description	Project Scenario	Planning App Status	Date of Substantial Occupancy	EIR?
County Government Center	New San Mateo County Office Building #3, up to 200,000 sf office	Cumulative	approved	Spring 2020 (anticipated	EIR
Woodside Road corridor near Highway 101	520 residential units, 420,000 sf office space, 11,000 sf retail space, and 10,000 square feet of childcare space,	Cumulative	under review	Winter 2022 (anticipated	EIR underway
103 Wilson Street	175 multi-family residential units; 202 parking spaces	Background	under construction	Summer 2018 (anticipated)	
1175 Marshall Street	Kaiser Hospital Phase II: 196,100 sf medical, 441 parking spaces	Cumulative	under construction		
1305 El Camino Real	137 unit multi-family residential units	Background	under construction	Fall 2018 (anticipated)	
1401 Broadway plus Bay Road site	520 residential du's; 420,000 sf office; 18,800 sf retail;6,860 sf commercial/flex	Cumulative	proposed		EIR
1409 El Camino Real	350 for-rent residential du's	Background	approved	Spring 2019 (anticipated)	
150 El Camino Real	12 for sale townhouse units	Background	under construction	Under Construction	
1548 Maple Street	131 residential units	Cumulative	approved		EIR
1629 Main	24,700 sf office; 2 residential du's	Background	under construction	Under Construction	
1690 Broadway	92 room Holiday Inn Express hotel	Cumulative	approved		
2075 Broadway	80,000 sf office; 13,515 sf retail	Background	under construction	Under Construction	
320-350 Blomquist	1,296,556 high-tech office campus	Cumulative	proposed		EIR
353 Main	125 residential units	Cumulative	approved		
433 Harrison	17 townhomes	Cumulative	approved		
550 Allerton Street	69,486 sf office	Background	under construction	Under Construction (not occupied)	
557 E Bayshore Rd	550 residential units, 100,000 SF sports club	Cumulative	proposed		EIR
601 El Camino Real	33 residential du's	Cumulative	under construction		
612 Jefferson	20 ownership residential du's (100% affordable)	Background	approved	Building permit hasn’t been issued	
707 Bradford	117 residential units (100% affordable/senior housing); 8.000 sf childcare	Cumulative	approved		
849 Veterans Blvd	90 unit multi-family residential units	Background	under construction	Fall 2018 (anticipated)	
851 Main Street	80,000 sf retail; 6,910 sf retail (above DTPP caps for office)	Cumulative	approved		EIR
910 Woodside Rd	10 condo units	Background	approved	Building permit hasn’t been issued	
929 Main Street	8,002 sf retail	Cumulative	approved		

TABLE 4.0-1 (Continued)
CUMULATIVE CONTEXT PROJECTS LIST AS OF JULY 2018

Project	Description	Project Scenario	Planning App Status	Date of Substantial Occupancy	EIR?
Stanford in Redwood City	570,000 sf office; 31,159 sf recreation; 14,000 sf childcare; 5,053 sf storage	Background	under construction	2019 (anticipated)	
YMCA/Veterans Senior Center – Red Morton Park	125,000 recreation		proposed		EIR
504 El Camino Real	33 residential dwelling units, 16,000 sq. ft. commercial	Cumulative	proposed		
1601 El Camino Real	272 residential units, 589,700 sq. ft. office, 10,000 sq. ft. retail, 10,000 sq. ft. child care	Cumulative	proposed		
31 Center	7 residential units	Cumulative	proposed		
120 El Camino Real	12 residential units	Cumulative	proposed		
525 E. Bayshore	201,000 sq. ft. auto-dealership	Cumulative	proposed		
610 Walnut	63,835 sq. ft., 6 story office building	Cumulative	proposed		

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4.1 Aesthetics

This section evaluates the potential for the Project to affect existing visual conditions of the environment, specifically scenic vistas, visual character and quality, light and glare, as well as shadow. This analysis is based on existing conditions information field reconnaissance in and around the Project vicinity, including areas throughout the City to assess potential long-range views. The evaluation considers existing visual conditions (generally as of January 2018) and utilizes computer-generated photosimulations illustrating the "before" (existing) and "after" (with Project implementation) conditions relative to implementation of the Project.

4.1.1 Environmental Setting

Existing Visual Character

Regional and Citywide

Redwood City is approximately 34 square miles, of which approximately 60 percent is dedicated to open space, water, and recreation, as the City boundary extends into San Francisco Bay. The City is relatively flat, with elevated hillsides in the south and western areas. Views from these hillside areas are panoramic and encompass developed and undeveloped areas, hills beyond the San Francisco Bay, and the forested side of the Santa Cruz coastal mountains.

Project Vicinity

Existing Character and Uses

Figures 3-4 through 3-6 in Chapter 3, *Project Description*, of this Draft EIR convey in aerial and birdseye photography the existing visual character and development pattern of the Project site and its surrounding areas. Overall, the visual character of the Project vicinity is established by a mix of industrial, commercial, civic, and natural uses.

West

Closest to U.S. Highway 101 and west of the Project site (generally between the site and Maple Street) are low to mid-rise public buildings, that are the newest infrastructure and facilities in the area, such as the new San Mateo County Correctional, the Maple Street Shelter, and the Redwood City Police Department headquarters. Decorative iron fencing exists at the Police Department property. Striped parking is provided in clearly delineated areas around the public buildings, and informal parking also exists along the western portion of the Maple Street "U" loop, serving the marine-related and storage uses. Most roadways in the area west of the Project site are lined with natural and overgrown vegetation. Most land not used by outdoor storage, parking, or buildings are primarily barren with ruderal vegetation.

Areas west of Maple Street, are typified by aging infrastructure and roadways, open storage uses, (recently approved for new residential development), under-developed natural areas and marina / residential watercraft uses, and the inlets, waterways, and marshlands associated with the Redwood Creek and Steinberger Slough to the north and west approximately 1,500 feet from the

Project site. Low post-and-chain barriers as well as open and slatted chain-link fencing exist throughout the areas further west of the Site. Overhead utilities exist adjacent to the Project site.

North and East

Areas nearest to the Project site are industrial/commercial and construction equipment business uses, railroad tracks, and freeway and Port access via Seaport Boulevard. The industrial character to the north and east of the Project site includes large facilities associated with Graniterock, Peninsula Building Materials, railroad tracks, and the Cargill salt evaporation ponds further east. The main east-west roadway is Blomquist Street, which is improved with consistent paving, curbs and sidewalks on the south side of the street. Uses along Blomquist Street include industrial and commercial businesses and associated truck traffic, as well as the closed and demolished Malibu Golf and Grand Prix recreational facilities. Well-maintained fencing (chain link and wire/wood types) exists in front of the building materials storage uses along this road. A solid stone wall exists along the Graniterock concrete operation. Some landscaping and street trees exist along Blomquist Street, with decorative treatments and wider landscaped buffers between the sidewalks and property fencing/walls nearing Seaport Drive.

Highway 101 and South

Existing development along and south of Highway 101 includes a varied mix of industrial, commercial, residential, and open space uses. From 101, south to Veteran's Boulevard, is the northern area of Downtown, which is a mix of large commercial buildings and associated structured and surface parking areas, including Kohl's Plaza and the Redwood City Kaiser Permanente campus.

Existing Building Heights

Existing buildings on or adjacent to the Project site are primarily one to two stories in height. The new San Mateo County Correctional Center is five stories and is the tallest building nearby. The recently demolished Malibu Castle and industrial-commercial buildings along Blomquist Street were typically two stories.

Building heights within approximately 500 feet of the Highway 101 right-of-way between South San Francisco and Sunnyvale (approximately 25 miles) are predominantly one- to three-stories. However, development up to 12 stories (primarily office and hotel buildings or complexes) exists in isolation. Buildings within 500 feet of the U.S. Highway 101 right-of-way and in proximity of the Project site include the two-story Police Department and the new five-story Correctional Center.

As described in the Zoning Ordinance and General Plan, the current maximum permitted building heights Project vicinity range from 75 feet (three stories) to 100 feet (about eight to nine stories), and are limited to approximately three stories on the Project site.

Existing Shadow and Lighting

The Project site does not contain shadow-sensitive land uses or those sensitive to the loss of direct sunlight, such as existing public parks, plazas, and open space, and existing solar energy collectors. Solar energy collectors exist on the Redwood City Police Department building and on

the Women's Jail and Work Furlough Facility to the west. Existing nighttime lighting is primarily security lighting associated with the open storage uses, commercial and industrial businesses, and the existing City and County facilities.

Existing Scenic Vistas and Resources

The topography within and around the Project site is generally flat. Public viewpoints within Redwood City from which viewers can see scenic vistas or resources are primarily available from locations within the elevated southern and western hillside neighborhoods of the City. These include the Easter Cross, Easter Bowl, Canada College and Edgewood County Park. Scenic vistas visible from these elevated viewpoints include views of San Francisco Bay and its associated baylands, sloughs, and marshes (including the natural and utility facilities on Bair Island), and the urbanized San Francisco Bay Peninsula. Scenic vistas from these elevated viewpoints also capture the entire City (including the Project site), developed and natural areas in the region, the hills beyond the San Francisco Bay, and further to the forested side of the Santa Cruz coastal mountains.

The Project site fronts approximately a one-third-mile-length of Highway 101. The highway is generally the same elevation as the Project site and offers fleeting (given travel speeds and close proximity) views by passersby. These stretches include about one-quarter mile along the Project site, where the previously Malibu Grand Prix and Castle facilities existed. Dense landscaping on this stretch essentially restricts views to parts of the Project site from travelers on Highway 101.

4.1.2 Regulatory Setting

Redwood City General Plan

The Redwood City General Plan sets forth land use designations (or categories) across the Project site: Industrial – Light (IL) and Industrial – Port Related (IP). Each is described in detail in the *Regulatory Setting* in Section 4.9, *Land Use and Planning,* of this EIR. Generally, the land use designations support a mix of uses ranging from light to heavy industrial and maritime related activities.

On the Project site, the maximum floor area ratio (FAR) is 0.5 in the IP designation and a maximum FAR of 0.75 in the IL designation. Building height limits are limited to three stories.

Several *Elements* of the General Plan include a number of policies applicable to the consideration of aesthetics on the Project site, and adopted for the purpose of avoiding or mitigating an environmental effect. The policies listed below are several that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***Policy BE-1.5*****:** Require that new and renovated buildings be designed to avoid styles, colors, and materials that negatively impact the environment or the design character of Neighborhood, Center, or Corridor in which they are located.

- ***Policy BE-1.9*:** Carefully consider new shade, shadow, light, and glare effects from proposed development projects and comprehensive plans.
- ***Policy BE-3.2*:** Encourage new development to create direct and clear visual relationships between residences and public streets, while minimizing driveways, parking areas, and garage doors in front yard spaces.
- ***Policy BE-3.3*:** Require new development to provide engaging, well-landscaped outdoor spaces that invite and support outdoor activities for residents, especially areas viewed or accessible by the public.
- ***Policy BE-3.4*:** Encourage building forms that create coherent and consistent street frontages on blocks that emphasize the visibility of entrance doors, porches, stoops and/or entrance patios.
- ***Policy BE-3.5*:** Require building and site frontages that define public streets with high-quality architectural and landscape design, including small-scale architectural elements and plane changes.
- ***Policy BE-3.7*:** Identify positive neighborhood character elements, and use these design features as design drivers for new development.
- ***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-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-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.

Redwood City Zoning Ordinance and Sign Ordinance

The Redwood City Zoning Ordinance divides the City into zoning districts that prescribe development regulations for each district. These regulations affect aesthetics factors including site coverage, building height, and building setbacks. The Project site includes the following zoning designations: Industrial Restricted (IR) and General Industrial (GI). Each is described in detail in the *Regulatory Setting* in Section 4.9, *Land Use and Planning,* of this EIR and mapped in Figure 4.9-2. (Also see Table 4.1-1 further in this section)

The City's Sign Ordinance regulates signage in the City. It is the intent for any signs on regulated land to enhance the quality of the visual environment, aid in attracting shoppers and other visitors, and promotes traffic safety and convenient circulation for motorists, bicyclists, and pedestrians.

Redwood City Architectural Review Process

The City's Architectural Advisory Committee (AAC), as established by City Resolution No. 15143, is responsible for reviewing and addressing the enhancement of the natural beauty of the environment, and to provide for the orderly and harmonious appearance of structures and grounds. The AAC advises the City Council, Planning Commission, and Zoning Administrator on matters concerning building architecture, landscape architecture, site design, and signs. The AAC is responsible for addressing only the portion of structures facing a public street or place, and the portions of the sides of a structure that are within 50 feet of any portion that faces a public street or place.

State Scenic Highways Program

No officially designated or any eligible state scenic highways are located in Redwood City. The closest state scenic highway to the Project site is Interstate 280 (I-280), the Junipero Serra Corridor, which is located approximately five miles southwest of the Project site.

The State Scenic Highways Program is intended to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. A highway may be designated as a scenic highway by Caltrans depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

Title 24 Outdoor Lighting Zones

The California Energy Commission (CEC) establishes Building Energy Efficient Standards within Title 24 that address outdoor lighting for public and private uses. The standards specify outdoor lighting requirements for residential and non-residential development and their intent 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 population figures in the 2003 Census and the areas can be designated as LZ1 (dark), LZ2 (low), LZ3 (medium), 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 Project vicinity is defined as an urban area and is therefore designated as LZ3 per the CEC classification standards.

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 10 percent at any one time between the hours of 10 a.m. and 2 p.m. over an existing solar collector used for water heating, space heating or cooling, or power generation on 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.

4.1.3 Project Baseline

The baseline for the aesthetics analysis are the existing conditions described and illustrated in the *Environmental Setting* section above, which existed generally at the time the Notice of Preparation for the Project was issued on January 12, 2018. This includes all existing structures and features and opportunities to view the Project site from public viewpoints, both during the day and at night.

4.1.4 Significance Criteria

Based on Appendix G of the CEQA Guidelines and on specific recommendations for shadow analysis included in the City's EIR for the General Plan, the proposed project would be considered to have a significant aesthetics impact 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) Substantially degrade the existing visual character or quality of the site and its surroundings; or

d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area; or

e) Cast shadows onto adjacent residential parcels that substantially impair the beneficial use of a residential parcel.

Approach to Analysis

Scenic Vistas

The analysis approach for criterion "a" (Impact AES-1) involves defining scenic vistas that could be "substantially" and adversely affected (discussed below) by development of the Project. Scenic vistas provide visual access to a large geographic area for which the field of view can be quite wide and extend into the distance. Such views may capture including mountains, valleys, cityscapes, or the ocean. The identification of specific scenic vistas to be considered in this EIR was informed by the Redwood City General Plan, which consistently values views of San Francisco Bay and its relationship to the waterfront and the Santa Cruz Mountains. The scenic vistas selected for this analysis align with those identified in the General Plan EIR.

Therefore, the scenic vistas selected for consideration in this analysis include long-range views of San Francisco Bay and its shoreline, tributaries and marshes, as well as distant views of undeveloped hillsides and ridges, including across the Bay.

As previously mentioned, scenic vistas are vast and encompass a viewer's full range of vision beyond that captured by the short-range, mid-range, or long-range panoramic photographs in this document. Also, views of scenic vistas may be intermittent given existing development, topography and landscaping, and as they are viewed by numerous viewers traveling along major roadways, particularly Highway 101. Moreover, the perception and interpretation of visual changes vary widely among viewers and therefore are largely subjective.

This analysis considers that a "substantial" and adverse effect would occur if the change (proposed development or landscaping) blocks or noticeably interrupts the full expanse of the scenic vistas described above, as viewed from public viewpoints located north of the Project site, from Highway 101and its off-ramp approaching the Project site, the shoreline of Redwook Creek, and from a distant location within the highest elevations of the city.

Visual Character or Quality of the Site and its Surroundings

Development of the Project would result in a change in the existing visual character or quality (collectively, visual conditions) of the Project site and its surroundings as a result of new development, infrastructure, and open spaces and landscaping. Generally, changes in visual character and quality consider changes resulting from change in land use themes or mixes, architectural style, and the appearance of what is visible in the public realm, such as buildings, roadways, sidewalks, signage, landscaping, and utilities. As stated above, the perception and interpretation of visual changes vary widely among viewers and are therefore largely subjective. Therefore, the analysis aims to focus on discrete changes affected by the Project; change in visual character is not presumed to be an adverse effect.

Photosimulations

The visual analysis uses computer-generated photosimulations (discussed below) compared to existing photos to show how development of the Project would affect scenic vistas, scenic views, or existing visual conditions from particular public viewpoints (discussed below).

Project photosimulations are a three dimensional (3D) digital model of the Project and site plan. Those presented in this analysis were developed by the Project sponsor and represented with the proposed Project-specific grading, landscaping and architecture plans. The detailed exterior building materials and finishes shown in the photosimulations are representative of those proposed by the Project and the overall Project characteristics described in Section 3.4 and shown in Figures 3-8a through 3-13 in Chapter 3, and shown in Appendix B to this Draft EIR.

Selected Viewpoints

Five public viewpoints (VP) were selected in consultation with City staff and its planning consultants and were chosen because they are accessible by the general public and considered to best illustrate the effects of possible future development on the selected scenic vistas and views, as well as to convey a change in the existing visual conditions of the Project site and its surroundings.

Shadow Impact Thresholds

As mentioned in the introduction of the applicable *Significance Criteria* above, the assessment of potential shadow effects is considered in this EIR based on criteria provided in Appendix G of the CEQA Guidelines and based on specific recommendations for shadow analysis included in the City's General Plan EIR. The analysis of potential shadow effects under criterion "e" in this EIR (Impact AES-4) are specified in General Plan Program BE-13 and General Plan Mitigation Measure 4.1-3.

As suggested by General Plan Policy BE-13, facilities and operations considered potentially sensitive to the loss of direct sunlight may include existing solar collectors; shadow-sensitive public open space (e.g., public parks, plazas, sensitive natural habitats, and other open space areas); routinely usable outdoor areas of residential properties; and commercial uses such as pedestrian-oriented outdoor spaces or restaurants with outdoor eating areas.

Topics Considered and Determined No Impact

- ***Scenic Resources*** (Criterion b). Valued scenic resources include striking or unusual natural terrain (e.g., heritage or landmark trees or rock outcroppings), or unique urban or historic features. The significance criterion specifies in particular resources within a state scenic highway. An impact would be considered significant if a project substantially and adversely affected by development of a project.

  No officially designated or any eligible state scenic highways are located in Redwood City. The closest state scenic highway to the Project site is I-280, the Junipero Serra Corridor, which is located approximately four miles southwest of the Project site. Therefore, there would be no impact to scenic resources within a state scenic highway by the Project. This topic is not discussed further in this analysis.

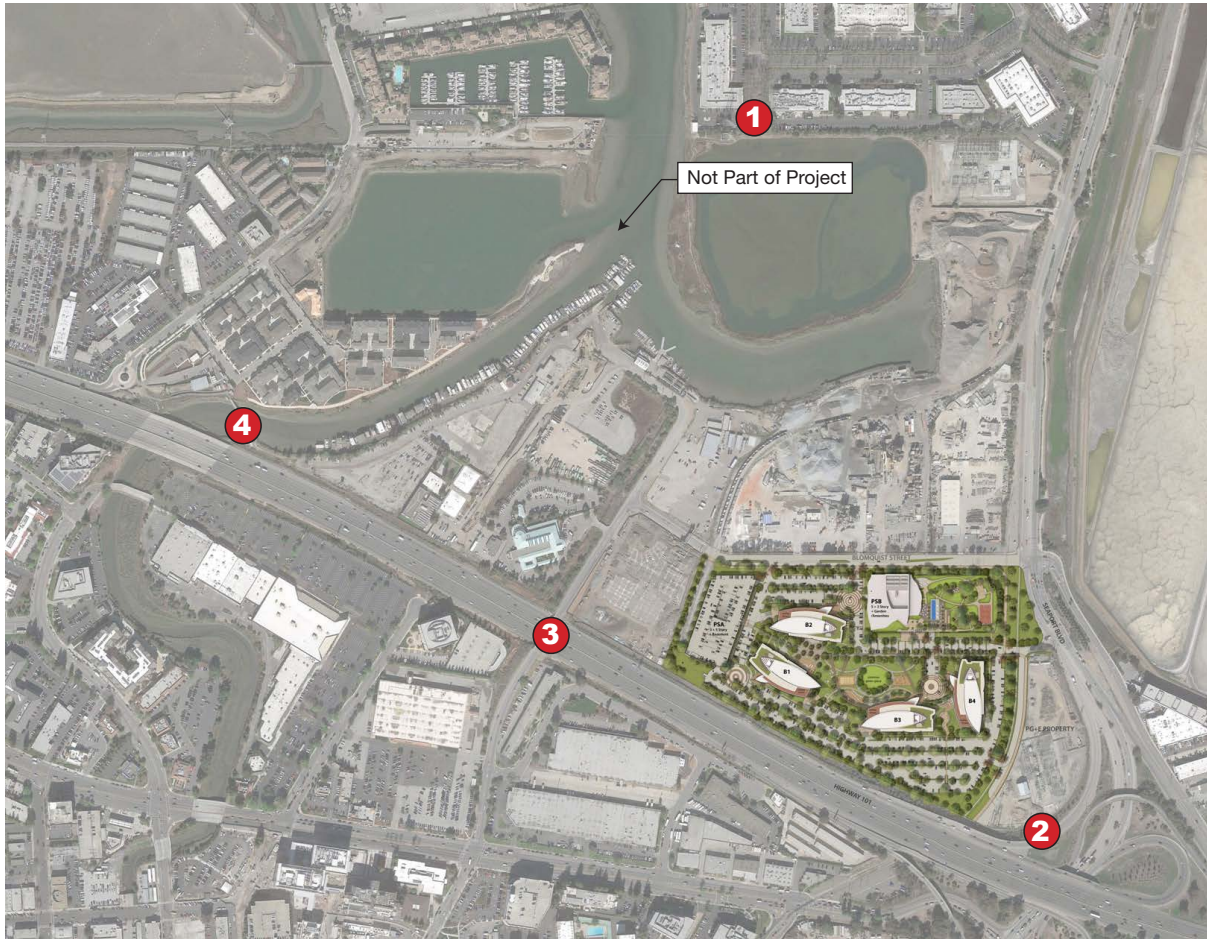
4.1.5 Impacts of the Project

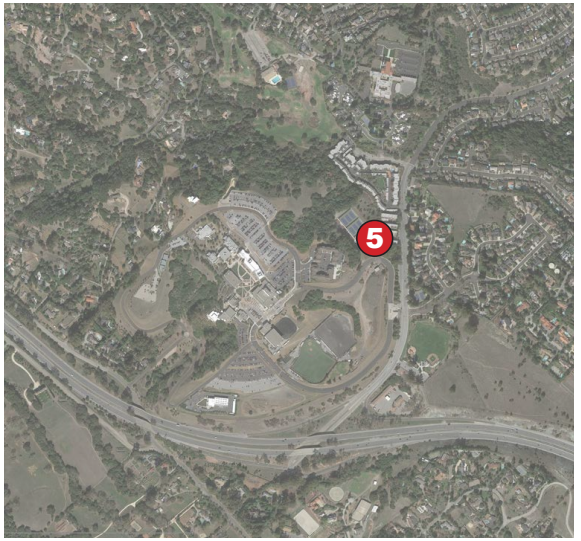
Scenic Vistas (Views)

Impact AES-1: The Project would not have a substantial adverse effect on a scenic vista. (Criterion a). (Less than Significant)

The proposed Project includes four office buildings, two parking structures, and an employee amenities building. The overall Project concept is an office campus centered with an approximately 4-acre green space with a series of landscaped spaces and promenade that connect the buildings. The four proposed office buildings are each approximately 286,000 square feet in floor area and are seven stories tall (100 feet tall to rooftop; 123 feet to top of rooftop trellis/tower). The proposed amenities building is two-stories tall (30 feet tall to rooftop). The Project has an approximate FAR of 1.0. Buildings will cover approximately 33.4 percent of the Project site. See Figures 3-6 through Figure 13 in Chapter 3*, Project Description,* of this document). The existing maximum building height currently permitted on the Project site (per the General Plan) is three stories. The existing maximum FAR currently permitted on the Project site (per the General Plan) is 0.5 FAR in the IP general plan land use designation, and 0.75 FAR in the LI designation; the Project would involve an amendment to the General Plan to accommodate the height and FAR proposed with the Project.

The following pages include photosimulations showing each of the before and after images of the proposed Project, selected and prepared as discussed in the *Approach to Analysis* above. The photosimulations are **Figures 4.1-2 through 4.1-6 (VP1 through VP5)**, and the key map to each viewpoint is **Figure 4.1-1**. As discussed in the *Approach to Analysis*, the photosimulations focus on scenic vistas that include distant hillsides and bodies of water, namely San Francisco Bay and its shoreline, tributaries and marshes are especially valuable, as are distant views of hillsides and ridges, including across the Bay.





3.83 miles south of site at Canada College

SOURCE: DES Architects + Engineers, 2018

Harbor View Project . 170951

Figure 4.1-1
Photosimulation Viewpoints

Harbor View . 130467

SOURCE: DES Architects + Engineers, 2018

Figure 4.1-2
Viewpoint 1 - Southeast across
Ferrari Property from Penobscot Drive

Harbor View . 130467

SOURCE: DES Architects + Engineers, 2018

Figure 4.1-3
Viewpoint 2 - Northwest across Project Site
from US 101-Seaport Blvd

Harbor View . 130467

SOURCE: DES Architects + Engineers, 2018

Figure 4.1-4
Viewpoint 3 - Southbound US 101 toward Project Site

Harbor View . 130467

SOURCE: DES Architects + Engineers, 2018

Figure 4.1-5

Viewpoint 4 - North Along Redwood Creek from Pedestrian Bridge

Harbor View . 130467

SOURCE: DES Architects + Engineers, 2018

Figure 4.1-6

Viewpoint 5 - Long-Range Northwest from Canada College

As shown in the existing conditions photographs that are paired with their respective photosimulation, views of the scenic vistas seen from viewpoints looking toward and across the Port Industrial Center area and Redwood Creek/Harbor Center area designated in the General Plan — generally between Seaport Boulevard and Redwood Creek — and specifically looking toward and across the Project site, are limited due to intervening development and relatively flat topography. The photosimulation shows that no scenic vistas or view corridors would be substantially obstructed or degraded by the maximum possible development on the project site, as described below.

Figures 4.1-3 (VP2) and 4.1-5 (VP4) show the lack of scenic vistas that could be adversely affected. Figures 4.1-2 (VP1) and 4.1-4 (VP3) capture long-range views of distant hillsides, however the proposed Project does not create a detrimental change to these views given the existing development that is also visible. Figure 4.1-6 (VP5) is the distant view toward the Bay from Canada College. The proposed buildings appear prominent within the context of other relatively tall and wide buildings in the midground. However, considering the full expanse of the panoramic view that occurs for the viewer in reality (which extends far beyond the image presented), the proposed development does not impair this long-range view of the bayfront area.

Overall, development of the Project would not have a substantial adverse effect on a scenic vista or resource, as demonstrated by the considerations above and shown in each of the simulations. Specifically, development of the Project would not substantially block views of the Bay or distant hillsides to cause a significant effect. The impact of the Project to existing scenic vistas and scenic views would be less than significant.

Mitigation: None Required

Visual Character or Quality (Visual Conditions)

Impact AES-2: The Project would not degrade the existing visual character or quality of the site and its surroundings. (Criterion c). (Less than Significant)

When the photographs were taken to establish the physical baseline conditions of the Project site for this analysis, the Project site contained remnant facilities of the former Malibu Raceway and Golf Course and construction and materials supply businesses with associated outdoor storage. Most of these businesses ceased operation after being acquired by the Project sponsor, and when this Draft EIR was published, the Project site was vacant, except for a construction office that fronts Blomquist Street.[1]

Existing driveways to the Project site exist via Stein Am Court cul-de-sac and Lyngso Lane on the east, and several remnant driveways off Blomquist Street.

[1] Operations on the Project site ceased prior to publication of the NOP for this EIR in January 2018.

Surrounding properties include PG&E utility yards active railroad tracks along the site's east and west ends, and U.S. 101 along its southern edge. The new San Mateo County Correctional Center exists immediately to the west, and uses across Blomquist Street (north) include the Graniterock operations, which is the most intensive use in the immediate are of the project site. Overall, the Project site is largely inactive at present.

The existing photograph in Figure 4.1-3 captures the character of the Project site itself and its immediate surroundings. From a broader vantage point, Figures 4.1-4 (VP3) and 4.1-5 (VP4) show the proposed Project within the existing mixed character of waterfront, light industrial, open space, as well as Highway 101-fronting commercial uses, captured specifically in Figure 4.1-4 (VP3).

Buildings and Site Design

The proposed exterior materials palette for the Project includes textured aluminum panels that separate the facades into differentiated elements. In addition, the glassy areas of the building include a blue-green high performance glass with texture in the mullion framework to break up those surfaces. Aluminum mullions relate to the solid panel areas. This design conveys a modern architectural style that offers design interest, which is particularly appropriate given the project's location adjacent to, and highly visible within the freeway corridor (General Plan Policy BE-10.6). As depicted in the building elevations (Figures 8a and 8b through Figures 10a and 10b, and Figure 3-11) and the simulations in this section, the rooftop mechanical equipment and penthouse on each building are also clad in textured metal panels for screening.

The proposed office buildings are sited informally around a central landscaped open space (see Figures 3-5, 3-7 and 3-13 in Chapter 3). The site includes a series of internal walkways/paths linking onsite spaces and buildings, and linking the site to connections to parts of Port Industrial Center area and adjacent Redwood Creek/Harbor Center area(General Plan policies BE-1.5 and BE-3.3).

Parking Structures and Lots

The Project locates one parking structure at the western edge, and a larger garage fronting Blomquist Street at Seaport Boulevard (see Figure 3-5). Surface parking areas are situated on the perimeter of the site along parts of Blomquist Street and Seaport Boulevard, as well as along Highway 101. From the standpoint of visual quality and character, the exterior appearance and landscaping of the proposed parking structures, as well as how the parking location fits with the overall site layout concept, are considerations in assessing adverse aesthetics effect under CEQA.

A particularly high level of design treatment is proposed for the parking structures. As detailed in Figures 3-8a and 8b through Figures 3-10a and 10b and 3-11 in Chapter 3, *Project Description,* glass, aluminum and other metals, with various detailed elements (panels, louvers), fenestration, and color combine to present an architecturally and visually interesting design. Conceptual landscaping around the parking structures and through the surface lots is depicted in Figure 3-13. The conceptual layout incorporates vertical landscaping around garages to "soften" the garage's façades and create visual buffering.

Also, photosimulations shown in Figure 4.1-3 (VP2) and Figure 4.1-4 (VP3), generally depict the effect of the Project development to existing visual character and quality.

Summary

Taken together, the visual character of the Project site and surroundings is widely varied. The Project would introduce a modern office complex that will be highly visible from the freeway and distant areas, and that would contribute to the mixed use vision for the area, as expressed in the General Plan. Specifically, the visual character of the Project site would be changed from the previous commercial and building supply uses and development that characterized the Project site to modern, highly-landscaped office complex similar to those found in communities in and around Redwood City. The change in visual character would not adversely affect or degrade the character of Port-related and industrial uses that would continue to exist to the north and east of the Project. Moreover, the development will be a new identifiable marker to the entrance of the Port Industrial Center area and adjacent Redwood Creek/Harbor Center area. Regarding visual quality, as conveyed in the architectural and illustrative images prepared by the Project sponsor, the Project would develop new buildings of quality design and materials that would not impair the existing visual quality of the area. Overall, the Project would not degrade the existing visual character or visual quality of the Project site or its surroundings. The impact would be less than significant.

Mitigation: None Required

Light and Glare

Impact AES-3: The Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Criterion d). (Less than Significant)

As described in the *Environmental Setting* in this section, existing nighttime lighting in and around the Project site includes primarily street lighting, security lighting associated with the existing businesses, and lighting emanating from adjacent Highway 101. Existing commercial and industrial developments and Highway 101 have increased ambient lighting over the recent years. Development proposed under the proposed Project would significantly increase ambient light and glare levels associated with the potential use of reflective building materials, street light fixtures, nighttime lighting of commercial identification signs and logos, and increased vehicle and transit use.

Development of the proposed new office campus will result in additional nighttime lighting in the Project area, and would be similar to the level of nighttime lighting typical of commercial office developments of the scale proposed by Project. Lighting associated with surface and structured parking facilities are typically most visible, and the proposed project would also introduce lighting associated with its outdoor open space areas and network of paths. Given the immediately surrounding uses of Highway 101, building materials businesses with outdoor

sales/storage yards, and Graniterock, the resulting increased lighting from the Project would not be substantially out of character for the area.

Compliance with Title 24 lighting power allowances would be expected to adequately control unnecessary brightness of lighting, debilitating glare, and sky glow.

This EIR conducts a thorough analysis of the potential effects of nighttime lighting or use of certain building materials that can cause glare on birds in Section 4.3, *Biological Resources*. Mitigation measures are identified, the implementation of which will ensure the potential effect is less than significant.

In summary, the potential light and glare impacts of the Project would be less than significant.

Mitigation: None Required

Shadow

Impact AES-4: The Project would not (1) Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors; (2) Cast shadows that substantially impair the beneficial use of shadow-sensitive public open space; (3) Cast shadows that substantially impair the beneficial use of these residential parcels; and could (4) Cast shadows that substantially impair the viability of a sensitive natural habitat. (Criterion e). (Potentially Significant)

The issue of shade and shadow in general addresses the potential for development to directly block direct sunlight. The effects of shading by a structure upon another element or area can be either positive or negative depending upon the site-specific circumstances. Potential beneficial effects of shading for adjacent elements may include desired cooling effects during warm weather. Perceived adverse effects of shading may include the loss of desirable natural light, including natural light for passive or active solar energy applications, or the loss of desired warming influences during cool weather. Factors influencing the perceived impact of shadow are site-specific and can include building placement, the height, bulk and setback of structures, the time of year, the duration of shading in a day, weather, landscaping, and the sensitivity of adjacent land uses to loss of sunlight.

As suggested by General Plan Policy BE-13 (discussed under *Approach to Analysis* and below), facilities and operations considered potentially sensitive to the loss of direct sunlight may include public parks, plazas, and open space areas; commercial uses such as pedestrian-oriented outdoor spaces or restaurants with outdoor eating areas; and existing solar energy collectors.

Effect on Existing Conditions

None of these types of uses or spaces currently exist in or near the Project site to be potentially and adversely affected by the proposed development. The nearest public parks and open spaces to the Project site are located approximately 0.5 miles in the Downtown planning area and in the

Southeast planning area (see *Environmental Setting* in Section 4.12, *Public Services and Recreation,* in this EIR). The project site is approximately 700 feet from Steinberger Slough and approximately 1,200 from Redwood Creek (see *Blomquist Bridge over Creek,* below). Solar energy collectors evident in or around the Project site exist on the Redwood City Police Department building, and on the San Mateo County Correctional Center, approximately 700 feet from the project site.

No graphic shadow study was prepared for the Project give the distance of the project from shade-sensitive resources described above. The following is a qualitative assessment of potential shadow effects of the project. Shadows are cast northwest toward the future city park in summer and winter mornings, and spring and fall middays. The longest shadows occur in winter, and given the orientation of the Project site and the future park land, the shadow cast from the 5-story Parking Structure-A proposed on the western edge of the Project site could potentially reach a portion of the nearest park space, although that shadow would cast northward (toward Graniterock) by winter midday. In all, given the distance between the Project site (specifically Parking Structure A) and the future park land, no continuous shadow would be cast on these facilities for a duration that would substantially impair their beneficial use.

Blomquist Bridge over Creek

The potential new Blomquist Bridge crossing over Redwood Creek, while not yet designed, could cast new shadow on natural habitat areas in the creek. The bridge would cover existing open water and possibly affect existing riparian habit. The structure's width and elevation above the water are key considerations on the duration and area of shadow cast by the future structure. Conservatively, this analysis references mitigation measures in section 4.3, *Biological Resources,* in this chapter that will reduce potential effects to riparian habitat and wetlands that could apply to operation of the new bridge to less than significant.

The bridge would be implemented as transportation related infrastructure through the *East 101 Fair Share Area* in which the Project site exists. The Project will contribute to its fair share as required by the City of Redwood City. Specific study of the potential environmental effects of the bridge will occur during its discretionary review.

Future Project-level Review and Summary

Pursuant to General Plan Policy BE-13, the Project is expected to prepare a Project-specific shade and shadow study as part of the City's discretionary review for the project, which is not required for this CEQA review. As assessed above, given the respective distances of the Project site from existing solar collectors, public open space, residential development, and sensitive natural habitat, this qualitative assessment supports that the Project would not meet any of the four criteria. Further, the Project would be required to adhere to the development standards and regulations, and final design of the project would be subject to a Planned Community Permit approval to ensure consistency with development standards and guidelines.

In summary, development of the Project would not cast shadows resulting in substantially adverse effects pursuant to General Plan Policy BE-13. The impact would be less than significant.

Mitigation: None Required

4.1.6 Cumulative Impacts

Impact AES-1.CU: The Project, in combination with cumulative development in the Project vicinity and citywide, would not result in significant cumulative impacts to aesthetics. (Less than Significant)

The geographic scope for cumulative aesthetics impacts includes viewsheds that include the Project site, as well as areas surrounding the Project site with which development under the Project could combine to create visible effects.

Cumulative projects considered are those in the Project vicinity that would also involve construction activity, including those in the development forecasts conducted for this EIR based on the countywide transportation model and the U.S. 101/SR84 (Woodside Road) Interchange Improvement Project, and other approved, pending, and reasonably foreseeable future projects citywide, several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan and recently approved nearby – the 1548 Maple Street residential project (see Section 4.0.4 *Cumulative Analysis* in this chapter for detail).

Project Effects

Development of the Project will change and be reasonably considered to improve the overall visual quality and character of the Project site. As discussed in Impact AES-2, the new development will benefit the visual character of the Project site by introducing new uses. The Project will introduce a modern office complex that will be highly visible from the freeway and distant areas, and that will contribute to the mixed use vision for the area, as expressed in the General Plan. It would not detract from the mix of light and heavy industrial and Port-related uses at this east entry to the Port Industrial Center area. Overall, the Project will achieve beneficial aesthetic effects and Impact AES-2 would be less than significant.

Impact AES-1 evaluates the potential effects on scenic views or vistas, finding that development would not result in a substantial adverse effect given the limited existence of scenic views or vistas across the Project site that do not include the existing context of urban development. Adherence to specific design standards and regulations regarding new lighting, building materials, parking design, and building parameters, as well as additional design guidelines for exterior building lighting, support-the-less than significant determinations light and glare and shadow effects by the Project (Impacts AES-3 and AES-4).

Cumulative Effects

Cumulative effects regarding aesthetics normally require other cumulative projects to occur within the same viewshed and in proximity to the proposed development in order to evaluate a combined effect. While all of the projects listed in the cumulative list (Table 4.01-1 in Section 4.0

of this Chapter of the EIR) are located within Redwood City, only the recently approved 1548 Maple Street project could combine into a cumulative adverse effect to scenic views/vistas, character, lighting and glare, or shadow.

The approved 1548 Maple Street project and all other cumulative projects in the city and vicinity of the Project site have or will be analyzed for their potential aesthetics impacts– through project-specific review and/or the environmental review process, when applicable. If potential project-level, adverse aesthetics effects are identified through these processes, the project's effects will be reduced to less than significant to the extent feasible through adherence to project-specific design measures, including design modifications, identified through those processes, in addition to required compliance with standards and regulations in the General Plan, Zoning Code, or applicable specific or precise plan. Similar to the Project, standards and regulations address the location, size/scale, and appearance of new development with the intent being to avoid or reduce possible environmental effects.

In summary, development of the Project, in combination with past, present, existing, approved, pending and reasonably foreseeable future development, would not result in a cumulative impact to which they would have a considerable contribution. The Project would not contribute considerably to any potential cumulative effects related to obstruction of scenic views, degradation of visual character, generation of light and glare, or shading. Therefore, the cumulative impact is less than significant.

Mitigation: None Required

References – Aesthetics

City of Redwood City (2010). *New General Plan Draft EIR. http://www.redwoodcity.org/phed/planning/eir/generalplaneir_draft.html*, May 2010.

City of Redwood City (2012). *Stanford in Redwood City Precise Plan Draft Environmental Impact Report*, prepared by Wagstaff/MIG, February 24, 2012.

City of Redwood City (2014). *City of Redwood City Inner Harbor Specific Plan Land Use Technical Memorandum Final*, prepared by Wagstaff/MIG, February 10, 2014.

City of Redwood (2014). Municipal Code Chapter 35 and Chapter 29, Article VI. http://www.redwoodcity.org/publicworks/trees/tree_permit.htm, accessed July 28, 2014.

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4.2 Air Quality

This section addresses the potential for air quality impacts that could result from implementation of the proposed Harbor View Project, including increases in criteria air pollutants and the potential health effects resulting from exposure to these pollutants. The analysis of emissions focuses on whether implementation of the Project would cause an exceedance of State ambient air quality standards. This section describes existing air quality, potential short-term construction related impacts, and direct and indirect operational emissions associated with development of the Project.

This section analyzes and evaluates the potential impacts of the Project on regional and local air quality from both stationary and mobile sources of air emissions and the potential health effects of pollutants. The analysis is consistent with methodologies set forth in the Bay Area Air Quality Management District's (BAAQMD) CEQA Guidelines. Mitigation measures are identified to reduce potential impacts to less than significant levels. This air quality analysis is closely coordinated with the analysis of potential impacts with regard to greenhouse gases and climate change, which is provided in Section 4.4*, Greenhouse Gas Emissions and Energy*, of this chapter.

4.2.1 Environmental Setting

The Project site is located in Redwood City, San Mateo County. This setting description provides an overview of region-specific information related to climate and meteorology, existing air quality conditions in the Redwood City area, sensitive receptors, and the regulatory setting pertaining to the Project site.

Climate and Meteorology

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors such as topography and meteorology.

The climate of the greater San Francisco Bay Area, including the City of Redwood City, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The prevailing wind direction is from the northwest. Average wind speed (measured at the nearby San Carlos airport) is 10.5 miles per hour annually, with June having the highest average wind speed and January having the lowest (WRCC, 2015).

The San Mateo area experiences mild temperatures, with December being the coolest month with a maximum average 58.9 degrees Fahrenheit (F) and August being the warmest month of year with a maximum average 78.5 degrees F. Approximately 16.63 inches of rainfall is experienced annually (WRCC, 2018).

Air Pollutants of Concern

The U.S. Environmental Protection Agency (US EPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria. Below are descriptions of criteria pollutants that are a concern in the vicinity of the Project site and the potential health effects that can result from exposure to these pollutants.

Ozone

Ground-level Ozone (O_3) is the main component of smog. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NOx). ROG and NOx are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NOx under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

According to the USEPA, ozone can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath (USEPA 2018a). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease (USEPA 2018a). Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (USEPA 2018a). According to CARB, inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath (CARB 2019a). The USEPA states that people most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (USEPA 2018a). Children are at greatest risk from exposure to ozone

because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (USEPA 2018a). According to CARB, studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults (CARB 2019a). Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures (CARB 2019a). Further research may be able to better distinguish between health effects in children and adults (CARB 2019a).

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NOx. A precursor to ozone formation, NOx is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NOx emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere.

Ambient air quality standards have been promulgated for NO_2, which is a reddish-brown, reactive gas (CARB 2019b). The principle form of NO_X produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X (CARB 2019b). Major sources of NO_X include emissions from cars, trucks and buses, power plants, and off-road equipment (USEPA 2016a). The terms NO_X and NO_2 are sometimes used interchangeably. However, the term NO_X is typically used when discussing emissions, usually from combustion-related activities, and the term NO_2 is typically used when discussing ambient air quality standards. Where NO_X emissions are discussed in the context of the thresholds of significance or impact analyses, the discussions are based on the conservative assumption that all NO_X emissions would oxidize in the atmosphere to form NO_2.

According to the USEPA, NO_2 can potentially irritate airways in the human respiratory system (USEPA 2016a). Short-term exposures can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms And longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (USEPA 2016a). According to CARB, controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics (CARB 2019b). In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses (CARB 2019b). Infants and children are particularly at risk from exposure to NO_2 because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration while in adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and

chronic obstructive pulmonary disease (CARB 2019b). CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO_2 and there is only limited information for NO and NO_X, as well as large uncertainty in relating health effects to NO or NO_X exposure (CARB 2019b).

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. At very high levels, which are possible indoors or in other enclosed environments, CO can cause dizziness, confusion, unconsciousness and death (USEPA 2016b). Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease since these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress (USEPA 2016b). In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (USEPA 2016b). According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain (CARB 2019c). For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance (CARB 2019c). Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019c).

Particulate Matter

Particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health.

As long ago as 1999, BAAQMD CEQA Guidelines reported that studies showed that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area. Compelling evidence suggests that $PM_{2.5}$ is by far the most harmful air pollutant in the Bay Area Air in terms of the associated impact on public health. A large body of scientific evidence indicates that both long-term and short-term exposure to $PM_{2.5}$ can cause a wide range of health effects (e.g., aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardiovascular symptoms, and contributing to heart attacks and deaths) (BAAQMD, 2017a). According to CARB, both PM10 and PM2.5 can be inhaled, with some depositing throughout the airways (CARB 2017). PM10 is more likely to deposit on the surfaces of the larger airways of the upper region of the lung while PM2.5 is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation (CARB 2017). Short-term (up to 24 hours duration) exposure to PM10 has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017). The effects of long-term (months or years) exposure to PM10 are less clear, although studies suggest a link between long-term PM10 exposure and respiratory mortality and the International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017). Short-term exposure to PM2.5 has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days and long-term exposure to PM2.5 has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (CARB 2017). According to CARB, populations most likely to experience adverse health effects with exposure to PM10 and PM2.5 include older adults with chronic heart or lung disease, children, and asthmatics (CARB 2017). Children and infants are susceptible to harm from inhaling pollutants such as PM10 and PM2.5 compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems (CARB 2017).

Other Criteria Pollutants

Sulfur dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. In the Bay Area, high concentrations of SO_2 are only a concern in areas close to refinery operations. According to the USEPA, short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult (USEPA 2018b). According to CARB, health effects at levels near the State one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity (CARB 2019d). Exposure at elevated levels of SO_2 (above 1 ppm) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality (CARB 2019d). Children, the elderly, and those with asthma, cardiovascular disease, or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO_2 (CARB 2019d; USEPA 2018b).

Lead has a range of adverse neurotoxic health effects, and was formerly released into the atmosphere primarily via the combustion of leaded gasoline. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. In the Bay Area, high concentrations of lead are only a concern in areas close to general aviation airports. Lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood (USEPA 2017). The lead effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage (CARB 2019e). Excessive lead exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain (CARB 2019e).

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed above. Specifically, TACs include diesel particulate matter (DPM) (discussed below) emitted by diesel engines, and benzene and CO emitted by gasoline engines. Air pollution sources located near sensitive receptors are known to pose health risks. Sensitive receptors typically include land uses where individuals are susceptible to health risks when exposed to air pollution, including residences, day cares facilities, schools, medical facilities, and parks and recreational facilities. TACs are typically emitted by on- and off-road motor vehicles, stationary emission sources, and by industrial and commercial manufacturing. The California Office of Environmental Health Hazard Assessment (OEHHA) has identified several TACs that pose short-term (acute health risk), long-term (chronic risk), and/or carcinogenic health risks.

Diesel Particulate Matter

Diesel Particulate Matter (DPM) is the predominant TAC in urban air, with the potential to cause cancer. The California Air Resources Board (CARB) identified DPM as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations. The estimated lifetime cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The risk from diesel particulate matter as determined by CARB declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, CARB estimated the average statewide cancer risk from DPM at 540 in one million (CARB, 2009).

Existing Air Quality

Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network that measures the ambient concentrations of the six criteria pollutants (i.e., ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2). Existing and probable future general levels of air quality in the Project vicinity can generally be inferred from ambient air quality measurements conducted by BAAQMD at its

monitoring stations. The major criteria pollutants of concern in the San Francisco Bay Area (i.e., ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2) are monitored at a number of locations. Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, and wind patterns and meteorological conditions for that area. As a result, background concentrations can vary among different locations within the County. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. The nearest monitoring station to the Project site that measures concentrations of all of the major pollutants of concern is located adjacent to Redwood City at 897 Barron Avenue (in the North Fair Oaks neighborhood of unincorporated Redwood City). **Table 4.2-1** shows a three-year (2015 through 2017) summary of data collected at the Barron Avenue station compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which are presented in more detail in **Table 4.2-2**. Attainment of air quality standards is usually evaluated based on the most recent three-year set of data.

TABLE 4.2-1
AIR QUALITY DATA SUMMARY (2015–2017) FOR THE PROJECT VICINITY

Pollutant	Standard	Monitoring Data by Year		
		2015	2016	2017
Ozone, O_3				
Highest 1-Hour Average, parts per million (ppm)	0.09	0.086	0.075	**0.115**
Days over State Standard		0	0	**2**
Highest 8-Hour Average, ppm	0.070	**0.071**	0.060	**0.086**
Days over State/National Standards		**1/1**	0/0	**2/2**
Carbon Monoxide, CO				
Highest 8-Hour Average, ppm	9.0	1.6	1.1	1.4
Days over State Standards		0	0	0
Nitrogen Dioxide, NO_2				
Highest 1-Hour Average, ppm	0.18 / 0.100	0.048	0.046	0.067
Days over State/National Standards		0	0	0
Annual Average, ppm	0.030 / 0.053	0.011	0.009	0.011
Exceed State/National Standards?		No	No	No
Fine Particulate Matter, $PM_{2.5}$				
Highest 24-Hour Average, µg/m^3	35	34.6	19.5	**60.8**
Estimated days over National Standard Exceedances/Samples[e]		0	0	**6**
Annual Average, µg/m^3	12	5.7	8.3	9.1
Exceed State/National Standards?		No	No	No

NOTES: All data were measured at the Barron Avenue station. Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year. Values in bold are in excess of applicable standard. ppm = parts per million; µg/m^3 = micrograms per cubic meter; and NA = Data Not Available. BAAQMD no longer monitors SO_2 or PM_{10} at the Redwood City Station. SO_2 is now only monitored in proximity to petroleum refineries. $PM_{2.5}$ is considered a more accurate indicator of health exposure to particulate matter than PM_{10}.

SOURCE: BAAQMD, 2018a.

TABLE 4.2-2
AMBIENT AIR QUALITY STANDARDS AND BAY AREA AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard[a]		National Standard[b]	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	One-Hour Eight-Hour	0.09 ppm 0.070 ppm	Non-attainment Non-attainment	– 0.070 ppm	– Non-Attainment
Carbon Monoxide	One-Hour Eight-Hour	20 ppm 9.0 ppm	Attainment Attainment	35 ppm 9 ppm	Attainment Attainment
Nitrogen Dioxide	One-Hour Annual	0.18 ppm 0.030 ppm	Attainment –	0.100 ppm 0.053 ppm	Unclassified Attainment
Sulfur Dioxide	One-Hour 24-Hour Annual	0.25 ppm 0.04 ppm –	Attainment Attainment	0.075 ppm 0.14 ppm 0.030 ppm	Attainment Attainment Attainment
Respirable Particulate Matter (PM_{10})	24-Hour Annual	50 µg/m^3 20 µg/m^3	Non-Attainment Non-Attainment	150 µg/m^3 –	Unclassified –
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual	– 12 µg/m^3	 Non-Attainment	35 µg/m^3 12 µg/m^3	Non-Attainment Attainment*
Lead	Monthly Quarterly	1.5 µg/m^3 –	Attainment	– 1.5 µg/m^3	 Attainment

NOTES: ppm = parts per million; µg/m^3 = micrograms per cubic meter

[a] State Standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[b] National Standards, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM10 standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour PM2.5 standard is attained when the three-year average of the 98th percentile is less than the standard.

SOURCE: BAAQMD, 2018b.

As shown in Table 4.2-1, the ambient air quality standards are met in Redwood City on most days. Specifically, the State one-hour ozone standard was exceeded twice in 2017. The federal and State eight-hour ozone standards were exceeded on three days between 2015 and 2017. BAAQMD no longer monitors PM_{10} at the Redwood City Station, and $PM_{2.5}$ is considered a more accurate indicator of health exposure to particulate matter than PM_{10}. From 2015 through 2017, the federal $PM_{2.5}$ 24-hour standard was exceeded six times in 2017, while there were no exceedances of the

State or federal annual average standards during the summary period. As indicated in the table, no violations of the applicable CO or NO_2, standards were recorded at the Barron Avenue station during the three-year period. BAAQMD no longer monitors SO_2 at the Redwood City Station. BAAQMD now only monitors SO_2 in proximity to petroleum refineries as determined in its 2013 Monitoring Plan.

As shown in Table 4.2-2, the Bay Area is currently classified as non-attainment[1] for the one-hour State ozone standard as well as for the federal and State eight-hour standards. Additionally, the Bay

[1] Non attainment areas are areas that have air pollutant levels higher that the state and/or national ambient air quality standards.

Area is classified as non-attainment for the State 24-hour and annual arithmetic mean PM_{10} standards as well as the State annual arithmetic mean and the national 24-hour $PM_{2.5}$ standards. The Bay Area is unclassified or classified as attainment for all other pollutants standards (BAAMQD, 2018b).

The BAAQMD has also been monitoring TAC inhalation cancer risk levels (e.g., from diesel particulate matter--DPM) in potential cases per million at selected locations throughout the District, including parts of Redwood City, as part of the District's Community Air Risk Evaluation (CARE) program (see Regulatory Setting, below). BAAQMD had originally designated a portion of Redwood City as a "priority community" where BAAQMD CARE program Mitigation Action Plan risk reduction activities were to be focused in 2009. This area was included in the first (2009) version map because of relatively high cancer risk, which is lower in the 2013 analysis due to significant reductions in emissions of diesel PM in 2015 compared to 2005. Fine PM levels in Redwood City are generally similar to those in most other Bay Area communities and ozone values are lower (BAAQMD, 2014).

Areas along portions of certain Bay Area freeways, including local segments of US Highway 101 and State Highway 84, typically have higher measured risks. The modeled inhalation cancer risk in certain parts of Redwood City ranged from 250 to below 500 cases per million. More densely urbanized portions of the Bay Area, such as eastern San Francisco and western Oakland, had higher risks of nearly 1,000 in a million. With all CARE program-identified diesel risk reduction measures implemented, the District predicts that the overall inhalation health risk in the Bay Area will decrease substantially. BAAQMD estimates that DPM comprises approximately 80 percent of TAC emissions that contribute to the inhalation cancer risk in the Bay Area.

Sources of Toxic Air Contaminants

The sources of TACs identified within 1,000 feet of the Project site include emissions from vehicles traveling on US Highway 101, on-site generators at the City Police Station and Maple Street Correctional Center, and dust and particulates emissions associated with operation of the Graniterock facility. California Air Resources Board guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors.

US Highway 101

Vehicles traveling on Highway 101 generate TACs that include DPM and benzene, among other pollutants. California Air Resources Board guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors. Because the predominate winds in the Project vicinity are from the southwest and northwest quadrants, the predominant winds blow from Highway 101 toward the Project site. The Bay Area Air Quality Management District (BAAQMD) has developed a Google Earth database that shows health risks for various emission sources. That database shows that at 500 feet from Highway 101, health risks to residential receptors would be reduced to acceptable levels.

Particulate Emissions Sources

In the BAAQMD's health risk database, the Graniterock manufacturing plant located immediately adjacent to the east side of the Project site shows an annual average $PM_{2.5}$ concentration of 206 micrograms per cubic meter (BAAQMD, 2012). This level represents a potential health risk to sensitive receptors in the vicinity of this facility.

Sensitive Receptors

For the purposes of this air quality analysis, sensitive receptors are places with people who are considered to be more sensitive than others to air pollutants. As introduced above (see "Toxic Air Contaminants" and "Existing Air Quality"), the reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with some forms of recreation places a high demand on the human respiratory system.

There are no traditional residential uses within the Project site. The residential receptors nearest to the Project site are the existing residents of live-aboard vessels in Docktown Marina, and the condominium developments (One Marina and Marina Point) located approximately 1,550 feet west of the Project site, across Redwood Creek. The recently approved residential development at 1548 Maple Street is located approximately 1,500 feet west of the Project site. The Maple Street Correctional Center is located adjacent to the Project boundary (approximately 100 feet away from the boundary). Therefore, the inmates housed within the Maple Street Correctional Center, would be considered the most impacted sensitive receptors adjacent to the Project site.

Odors

As described by the BAAQMD in its recently revised *CEQA Air Quality Guidelines* (BAAQMD, 2017a), odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor.

An odor that is offensive to one person may be acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Odor impacts should be considered for any proposed new odor sources

located near existing receptors. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts.

4.2.2 Regulatory Setting

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and State ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the US EPA has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. To protect human health and the environment, the US EPA has set "primary" and "secondary" maximum ambient thresholds for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. These health-based thresholds are concentration levels that provide some health margin. If pollutant concentrations in ambient air stay below these thresholds, impact on public health is typically considered less than significant; otherwise, a potentially significant health impact may be incurred. Secondary standards were set to protect public welfare, including prevent decreased visibility and damage to animals, crops, vegetation, and buildings.

The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. Table 4.2-2 presents both sets of ambient air quality standards (i.e., national and State) and the Bay Area Air Basin's attainment status for each standard. California has also established State ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride.

Toxic Air Contaminants

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources, but does not directly regulate air toxics emissions. Under the Act, toxic air contaminant (TAC) emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The BAAQMD implements AB 2588, and is responsible for prioritizing facilities that emit air toxics, reviewing health risk assessments, and implementing risk reduction procedure. Pursuant to the requirements of AB 2588, the BAAQMD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout the District.

Federal

US EPA is responsible for implementing the programs established under the federal CAA, such as establishing and reviewing the NAAQS and judging the adequacy of State Implementation

Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

State of California

CARB is responsible for establishing and reviewing the State standards, compiling the California SIP and securing approval of that plan from US EPA, conducting research and planning, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal CAA and California CAA.

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Bay Area Air Basin. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. BAAQMD is also responsible for attaining and/or maintaining air quality in the Bay Area Air Basin within federal and State air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Bay Area and to develop and implement strategies to attain the applicable federal and State standards.

Any person or facility that puts in place, builds, erects, installs, modifies, modernizes, alters or replaces any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, shall first secure written authorization from the BAAQMD in the form of an Authority to Construct, unless the source is specifically excluded or exempt from permit requirements. The BAAQMD's permit process is a pre-construction review and approval process. The BAAQMD's review is conducted after the equipment is designed, but before it is installed.

California Environmental Quality Act (CEQA) Guidelines

The BAAQMD *CEQA Air Quality Guidelines* (Guidelines) advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. In June 2010, the BAAQMD adopted updated Guidelines, including new thresholds of significance, and revised them in May 2011 (BAAQMD, 2011). The thresholds BAAQMD adopted were called into question by a minute order issued January 9, 2012 in *California Building Industry Association v. BAAQMD,* Alameda Superior Court Case No. RGI0548693. The minute order stated that "The Court finds [the BAAQMD's adoption of thresholds] is a CEQA project, the court makes no further findings or rulings."

The claims made in the case concerned the CEQA impacts of adopting the thresholds, and in particular, how the thresholds would affect land use development patterns. Petitioners argued that the thresholds for Health Risk Assessments encompassed issues not addressed by CEQA. As a result, the BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. The California Supreme Court granted review of an appeal, but only to address whether or not CEQA requires an analysis of how existing environmental conditions would impact future residents or users of a proposed project and did not review or address the adequacy of specific thresholds adopted by the BAAQMD in 2011. On December 17, 2015, the Supreme Court concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents, reversing the Court of Appeal's judgment on that issue. However, the court did acknowledge that when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.

The case was the remanded back to the Court of Appeal, which concluded that "the challenged thresholds are not invalid on their face, but may not be used for the primary purpose envisioned by District, namely, to routinely assess the effect of existing environmental conditions on future users or occupants of a project" (CBIA v. BAAQMD [2016] 1 Cal.App.5th 715).

In May of 2017 the BAAQMD released its 2017 update to the Guidelines which once again contain the thresholds of significance formally presented in the 2011 Guidelines for the consideration of lead agencies in assessing air quality impacts. The 2017 Guidelines specify that under CEQA the receptor thresholds (the analysis of exposing new receptors to existing sources of toxic air pollution and odors) should not be applied to "routinely assess the effect of existing environmental conditions on future users or occupants of a project."

Air Quality Plans

Air quality plans developed to meet federal requirements are referred to as SIPs. The federal CAA and the California CAA require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM_{10} standard). In April 2017, the BAAQMD adopted the *2017 Clean Air Plan* (BAAQMD, 2017b). The plan's primary goals are to protect public health and protect the climate. The plan includes a wide range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The *2017 Clean Air Plan* updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code. The Air Basin is designated non-attainment for both the 1- and 8-hour state ozone standards. In addition, emissions of ozone precursors in the Bay Area Air Basin contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and to reduce the transport of ozone precursors to neighboring air basins.

The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. Other measures focus on a single type of

pollutant, potent GHGs such as methane and black carbon, or harmful fine particles that affect public health. These control strategies that can be grouped into the following categories:

- Stationary source measures;
- Transportation control measures;
- Energy Control Measures;
- Building Control Measures;
- Agricultural Control Measures;
- Natural and Working Lands Control Measures;
- Waste Management Control Measures;
- Water Control Measures; and
- Super GHG Control Measures

Air Toxics Program

The BAAQMD's Air Toxics Program integrates federal and State air toxics mandates with local goals that have been established by the BAAQMD's Board of Directors. The program consists of several elements that are designed to identify and reduce public exposure TACs. Under the preconstruction review of new and modified sources program, proposed projects are reviewed for potential health impacts, with the requirement that significant new/modified sources use the Best Available Control Technology to minimize TAC emissions. All applications for new or modified permits are reviewed for air toxics impacts, in accordance with the BAAQMD's Risk Management Policy and by Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.

Redwood City General Plan

The Redwood City General Plan *Public Safety Element* includes the following policies that pertain to air quality of the Project, and were adopted for the purpose of avoiding or mitigating an environmental effect issues. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this chapter of this Draft EIR.

- ***Policy PS-1.2*****:** Minimize vehicle emissions by reducing automobile use and encouraging alternative means of transportation.
- ***Policy PS-1.3*****:** Pursue efforts to reduce air pollution and greenhouse gas emissions by promoting the use of renewable energy (e.g., solar, wind, and hydroelectric power), and implement effective energy conservation and efficiency measures.
- ***Policy PS-1.5*****:** Require projects that generate potentially significant levels of air pollutants to incorporate the most effective air quality mitigation into project design, as feasible.
- ***Policy PS-2.1*****:** Consider surrounding land uses when locating sensitive receptors such as schools, hospitals, and residential uses so they are not unreasonably exposed to uses that generate pollutants considered detrimental to human health.
- ***Policy PS-2.4*****:** Avoid placing sensitive uses within 500 feet–or other distance deemed to be appropriate based on project-specific health risk assessment data–of the Port of Redwood City, related heavy industrial areas, and any roadways serving Port uses.
- ***Policy PS-2.6*****:** Require all land uses proposed within 500 feet of U.S. 101, El Camino Real, and Woodside Road that will house, accommodate, or serve sensitive receptors to incorporate appropriate design and construction features (e.g., filters on HVAC systems) that reduce potential exposure of persons to pollutants.

- ***Policy PS-3.3*:** Implement policies of the Built Environment Element that provide for compact, urban-style forms of development and complete streets and neighborhoods to reduce vehicle emissions by placing residents closer to jobs and services and providing alternative modes of transportation.
- ***Policy PS-3.4*:** Implement the policies of the Built Environment Element that promote transportation mode shifts away from private automobile travel.
- ***Policy PS-4.4*:** Promote urban forestation and other ecosystems that offer significant carbon mitigation potential.

4.2.3 Project Baseline

Under CEQA, the project baseline is normally defined as the physical conditions of the environment as it exists at the time of publication of the Notice of Preparation (NOP) of the project EIR. However, information regarding emissions from existing uses was not readily available during preparation of this analysis when the NOP was published for this EIR, in January 2018. Therefore, this analysis evaluates impacts of the Project conservatively assuming baseline emissions from existing uses to be zero.

4.2.4 Significance Criteria

Based on CEQA *Guidelines* Appendix G, a project would cause adverse impacts to air quality if it would:

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

b) Violate any air quality standard or contribute to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people, as measured by an average of five or more confirmed odor complaints per year over three years.

Significance criteria (c) is discussed in the Cumulative Impacts section.

Approach to Analysis

Criteria Pollutants

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operation. First, during project construction (short-term), the project would affect local particulate concentrations primarily due to fugitive dust sources and diesel exhaust. Under operations (long-term), the project would result in an increase in emissions primarily due to motor vehicle trips and on-site stationary sources such as natural gas-fired boilers for space and water heating. Other sources include minor area sources such as landscaping

and use of consumer products. Emissions associated with these sources include criteria pollutants, DPM and other air toxics. The potential health effects due to exposure to these air pollutants are discussed in Section 4.2.1 under the subheading *Air Pollutants of Concern*.

Impacts related to project construction are evaluated by comparing estimated construction emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_X, and $PM_{2.5}$; and 82 pounds per day for PM_{10}. Only the exhaust portion of $PM_{2.5}$ and PM_{10} emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. The BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. The BAAQMD Guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are implemented, air pollutant emissions for construction activities would be considered mitigated to a less-than-significant level. For long-term operations, BAAQMD has two sets of significance thresholds, including daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_X, and $PM_{2.5}$; and 15 tons per year for PM_{10}.

Construction emissions were estimated using the current version of the California Emissions Estimator Model (CalEEMod Version 2016.3.2). This model was also used to calculate the effectiveness of proposed mitigation measures. Operational phase emissions were also estimated using CalEEMod and incorporate the trip generation figures developed by Fehr & Peers for the Project.

With respect to impacts related to CO emissions, the BAAQMD has demonstrated, based on modeling, that to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Consequently, intersection volumes in the Project vicinity are used relative to these screening criteria to assess the potential for significant CO concentrations.

Toxic Air Contaminants

A health risk analysis was conducted to assess potential TAC impacts from DPM and local PM2.5 concentrations during construction using methodologies published by the Office of Environmental Health Hazard Assessment (OEHHA). OEHHA is responsible for developing and revising guidelines for performing health risk assessments under the State's the Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* ("OEHHA Guidance"), which updates the previous guidance by incorporating advances in risk assessment with consideration of infants and children using Age Sensitivity Factors (ASF) (OEHHA 2015). These changes also take into account the sensitivity of children to TAC emissions, different breathing rates, and time spent at home.

The health risk assessment is a quantitative analysis for project construction given the proximity of the Project site to sensitive receptors, and conducts a qualitative analysis for project operations, as described below. For project construction, DPM emissions have the potential to cause significant health risks to inmates in the Maple Street Correctional Center 100 feet west of the Project site. The construction analysis evaluates whether the project would cause health risks that exceed BAAQMD's thresholds. These include a cancer risk threshold of 10 in a million, an acute and chronic hazard index threshold of 1.0, and a $PM_{2.5}$ threshold of 0.3 $\mu g/m^3$. DPM does not represent an acute health risk. Therefore, acute health risks were not evaluated. Health risks from the operation of the Project are evaluated qualitatively because the project would not be a significant source of TACs, and it would not include any land uses considered sensitive to TACs emitted by surrounding land uses.

Cumulative

Regarding the assessment of cumulative impacts, a project's contribution to cumulative impacts to regional air quality would be considered significant if the project's impact individually would be significant (i.e., exceeds the BAAQMD's quantitative thresholds). For a project that would not result in a significant impact individually, the project's contribution to any cumulative impact would be considered less than significant if the project is consistent with the local general plan and the local general plan is consistent with the applicable regional air quality plan. In this case, the applicable regional air quality plan is the *2017 Clean Air Plan*.

4.2.5 Impacts of the Project

This section includes a project-level and cumulative analysis of the Project. The project-level analysis includes a discussion of construction and operational air quality impacts of the Project. Construction and operational emissions are discussed, as applicable, with regard to violations of air quality standards (criterion b), exposure of sensitive receptors to substantial pollutant concentrations (criterion d), and the creation of objectionable odors (criterion e). Operational emissions are discussed, as applicable, in relation to conflicts with the applicable air quality plan for the area (criterion a). Cumulative impacts are also discussed, as applicable, in relation to the air quality plan (criterion a), and the potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment (criterion c).

Construction Emissions

Impact AIR-1: Construction activities associated with the Project would generate fugitive dust and criteria air pollutants, and exceed the BAAQMD significance threshold for construction criteria air pollutant NOx (Criterion b). (Potentially Significant)

Construction activities are short-term and typically result in emissions of ozone precursors and particulate matter in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and particulate matter are primarily a result of the combustion of fuel from on-road vehicles and off-road construction equipment. However, ROGs are also emitted from activities that involve painting, other types of architectural coatings, and asphalt paving.

Using Project specific construction assumptions provided by the Project sponsor, the construction emissions analysis assumes the Project would involve the demolition of the remaining approximately 67,000 square-foot vacant construction office building that exists on the Project site, the removal of approximately 15,000 tons of pavement, and the construction of four buildings that contain approximately 1.17 million square feet of office and amenities space on the 27.08-acre Project site.[2] The Project site is currently vacant, except for a construction office that fronts Blomquist Street. During the Project's construction period, construction activities would have the potential to result in emissions of fugitive dust, ozone precursors, and particulate matter, as discussed below.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities could cause wind-blown dust that would contribute particulate matter into the local atmosphere. Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to particulate matter in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil or the demolished buildings. Additional potential health effects related to exposure to particulate matter are discussed in Section 4.2.1 under the subheading *Air Pollutants of Concern*.

Rather than quantifying fugitive dust emissions to evaluate impacts, BAAQMD emphasizes the implementation of appropriate mitigation measures for dust control during all construction activities. The BAAQMD Guidelines provide feasible control measures for construction emission of PM_{10} and implementation of these measures would ensure that construction impacts from fugitive dust would be less than significant. The BAAQMD recommended dust control measures are listed in **Mitigation Measure AIR-1** below. With the implementation of the Mitigation Measure, the Project's fugitive dust impacts would be mitigated to less than significant.

Criteria Air Pollutants

Criteria pollutant emissions would be generated by construction equipment exhaust, on-road vehicle trips of haul trucks for delivering construction material and removing debris and excavation spoils, and construction worker commutes to and from the Project site.

Construction-related criteria air pollutant emissions for the proposed Project were estimated using CalEEMod (California Emissions Estimator Model, version 2016.3.2). This version of the CalEEMod model was released in October 2017 and uses emission factors from CARB's OFFROAD2011 model for off-road equipment. For the estimation of on-road emissions, the model uses EMFAC2014 emission factors and estimated daily trips based on the square feet of proposed area to be built.

[2] Operations on the Project site ceased prior to publication of the NOP for this EIR in January 2018. The commercial and light industrial use buildings and gasoline service station that existed on the Project site at that time were demolished shortly thereafter.

As previously mentioned, Project specific data for construction phasing schedule and equipment fleet provided by the Project sponsor was used in the model to estimate emissions over the 24-month construction period. The total uncontrolled emissions generated over the duration of construction was divided by the number of construction days (estimated 511 days) to get an average daily emissions estimate for construction emissions, as shown in **Table 4.2-3**. As shown in the table, only NOx emissions from Project construction would exceed the significance thresholds for construction-related criteria air pollutants. Emissions of ROG, PM_{10}, and $PM_{2.5}$ would be below their respective significance thresholds. Therefore, the Project would have a significant impact related to construction criteria air pollutant emissions of NOx and mitigation measures would be required.

TABLE 4.2-3
UNMITIGATED PROJECT CONSTRUCTION-RELATED EMISSIONS

	Construction Emissions			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Total Construction Emissions (tons)	8.84	23.85	0.77	0.72
Number of construction days	511	511	511	511
Average Daily Construction Emissions (lbs/day)	34.61	**93.34**	2.99	2.83
Significance Threshold (lbs/day)	**54**	**54**	**82***	**54***
Significant?	**No**	**Yes**	**No**	**No**

SOURCE: ESA, 2018

NOTES: *PM10 and PM2.5 thresholds apply to construction exhaust emissions only

Implementation of **Mitigation Measure AIR-1A** would reduce emissions, primarily fugitive dust emissions. NOx emissions would have to be reduced by 42 percent to avoid a significant impact. As shown in **Table 4.2-4**, use of construction equipment that meet the Tier 4 standard as part of implementation of **Mitigation Measure AIR-1B**, which requires the use of construction equipment that have engines that meet or exceed CARB Tier 4 off-road emission standards, would reduce NOx emissions up to 40 percent depending on the level of implementation; however, the reduction would not be enough to bring construction NOx levels to less than significant levels. Implementation of **Mitigation Measures AIR-1C**, use of renewable diesel fuel during construction for off-road equipment, is necessary to achieve a standard NOx emissions reduction up to 10 percent, depending on the level of implementation, and would reasonably reduce the Project's construction NOx levels to less than the criteria pollutant standard (Tanikawa, 2015). The impact would be less than significant with the implementation of the aforementioned mitigation measures. As shown in Table 4.2-4, the average daily construction-related emissions of NOx would be reduced to 50 lbs/day with the implementation of the required mitigation measures, which is below the established threshold of 54 lbs/day.

TABLE 4.2-4
MITIGATED PROJECT CONSTRUCTION-RELATED EMISSIONS

	Construction Emissions			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Total Construction Emissions (tons)	7.40	14.18	0.05	0.04
Number of construction days	511	511	511	511
Average Daily Construction Emissions (lbs/day) *w/ MM AIR-1A and AIR-1B*	28.96	**55.49**	0.18	0.17
Significance Threshold (lbs/day)	**54**	**54**	**82***	**54***
Significant?	**No**	**Yes**	**No**	**No**
Average Daily Construction Emissions (lbs/day) *w/ MM AIR-1C,*	26.09	50.00	0.16	0.15
Significant?	**No**	**No**	**No**	**No**

SOURCE: ESA, 2018

NOTES: *PM_{10} and $PM_{2.5}$ thresholds apply to construction exhaust emissions only

Mitigation Measure AIR-1A: Implement BAAQMD Basic Construction Mitigation Measures.

The Project sponsor shall require construction contractors to implement the following applicable BAAQMD Basic Construction Mitigation Measures to reduce emissions of fugitive dust and equipment exhaust:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-1B: Implement BAAQMD additional construction mitigation measures.

The Project sponsor shall require construction contractors to implement the following measures, recommended for projects with construction emissions above significance thresholds to further reduce fugitive dust and exhaust emissions.

- All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Minimizing the idling time of diesel powered construction equipment to two minutes.
- The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM. Compliance with this measure requires that constructors use off-road equipment that have engines that meet or exceed CARB Tier 4 off-road emission standards which have the lowest NOx and PM emissions of commercially available equipment

- Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Mitigation Measure AIR-1C: Use of Renewable Diesel Fuel during Construction.

The Project sponsor shall require construction contractors to ensure that all diesel powered off-road construction equipment shall be fueled with renewable diesel, which has been demonstrated to reduce NOx emissions by approximately 10 percent (Tanikawa, 2015).

Significance after Mitigation: Less than Significant

Impact AIR-2: Construction activities associated with the Project would generate toxic air contaminants (TACs), including diesel particulate matter (DPM), but would not expose sensitive receptors to substantial pollutant concentrations (Criterion d). (Less than Significant)

DPM emitted by construction activities associated with the Project was evaluated for potential health risks. The analysis focused on whether DPM would cause significant health risks to inmates of the Maple Street Correctional Center, located 100 feet west of the Project site. No other sensitive receptors exist within 1,000 feet of the Project.

The Atmospheric Dispersion Modeling System (AERMOD) was used to estimate DPM concentrations at the Maple Street Correctional Center from Project construction (USEPA, 2015). Both on-site emissions from construction equipment and off-site emissions from heavy duty trucks were modeled together as an area source extending over the entire Project site. A variable emissions rate was used to represent project construction activity that is expected to take place only on weekdays for 8 hours per day between 8 a.m. and 4 p.m. Five years of meteorological data from the San Carlos Airport located approximately 2.5 miles northwest of the Project site was used to represent wind conditions at the project site.

Assessment of health risks from Project construction was conducted following methodologies and exposure parameters recommended in OEHHA's Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.[3]

The maximum cancer risk to inmates is estimated at less than 1 in a million, well below the BAAQMD's significance threshold of 10 in a million. The maximum chronic health risk index equaled 0.013, less than BAAQMD's chronic hazard index threshold of 1.0. Also, the estimated $PM_{2.5}$ concentration at the Correctional Facility was 0.06 ($\mu g/m^3$. Therefore, Project construction would not expose inmates to concentrations exceeding BAAQMD's $PM_{2.5}$ significance threshold of 0.3 $\mu g/m^3$ (as an annual average).

[3] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

In conclusion, construction of the Project would not expose sensitive receptors to substantial TAC concentrations and would therefore result in less than significant health risk impacts.

Mitigation: None Required

Impact AIR-3: The Project would not create objectionable odors that would affect a substantial number of people during construction (Criterion e). (Less than Significant)

During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon Project completion. Therefore, odor impacts would be less than significant.

Mitigation: None Required.

Operational Emissions

Impact AIR-4: The Project would not conflict with, or obstruct implementation of the *2017 Clean Air Plan* (Criterion a). (Less than Significant)

The applicable air quality plan for the area is the BAAQMD's *2017 Clean Air Plan.* Under BAAQMD's updated 2017 methodology, a determination of consistency with the most recently adopted Clean Air Plan, currently the *2017 Clean Air Plan*, must demonstrate that a plan or project supports the primary goals of the Clean Air Plan, includes applicable control measures of the Clean Air Plan, and would not disrupt or hinder implementation of any control measures of the Clean Air Plan.

The primary goals of the *2017 Clean Air Plan* are to: (1) Attain all state and national air quality standards; (2) Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and (3) Reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. To meet the primary goals, the Clean Air Plan recommends specific control measures and actions. The *2017 Clean Air Plan* includes 85 control measures to reduce emissions of PM, ozone precursors, and other air pollutants from a wide variety of emission sources. Forty of these measures address stationary sources and primarily direct the BAAQMD to adopt or revise rules and regulations and other air quality programs and are therefore not directly applicable to implementation of an office campus development project.

The *2017 Clean Air Plan* control measures most applicable to the Project are transportation, energy, buildings, natural and working lands, and waste management control measures. The measures applicable to criteria air pollutants and TACs generated under the Project are identified in **Table 4.2-5**. These measures, by nature, are also related to the reduction of greenhouse gas emissions. The Project's impact with respect to energy and GHGs are discussed in Section 4.6, *Greenhouse Gas Emissions and Energy*, of this Draft EIR, which demonstrates that the Project would comply with those particular policies of the Clean Air Plan.

TABLE 4.2-5
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
TR1 – Clean Air Teleworking Initiative	Future employees at the Project site could be expected to take advantage of teleworking opportunities. The option of telecommuting is included in the Project's TDM, but the extent to which teleworking would occur cannot be accurately predicted at this time	Yes
TR2 – Trip Reduction Programs	The project would address this Measure through implementation of its TDM program.	Yes, with implementation of Project TDM program
TR3 – Local and Regional Bus Service	Transit services within study the area include the San Mateo County Transit District (SamTrans) and Caltrain.	Yes
TR4 – Local and Regional Rail Service	The Redwood City Caltrain station is within 1 mile of Project site.	Yes
TR5 – Transit Efficiency and Use	SamTrans Line 270 to the Redwood City Transit Center is located within 0.25 miles from the Project site. A Project sponsored shuttle service is also included in the Project's TDM that would provide service to Caltrain.	Yes
TR8 – Ridesharing, Last-Mile Connection	TDM Program includes a vanpool program, and preferential carpool and vanpool parking. A Project sponsored shuttle service is also included in the Project's TDM that would provide service to Caltrain.	Yes, with implementation of project TDM program
TR9 – Bicycle and Pedestrian Access and Facilities	Public access open space on the Project site includes direct bicycle and pedestrian access along the southern edge of the site (parallel to Highway 101) and along Old Seaport and Blomquist Street in 35-foot 40-foot-wide landscaped pathways. New bike and pedestrian pathways included in the Project will connect to the future Chestnut Street undercrossing bicycle path leading to the waterfront and will complete the planned San Francisco Bay Trail segment along Blomquist Street. Bike lockers and/or racks will also be provided at each building offices to encourage more commuters to bicycle.	Yes
TR10 – Land Use Strategies	The project would include clustered development adequate to buffer adjacent industrial uses, allow bicycle and pedestrian linkages, and other land use strategies that would result in trip reductions.	Yes
TR13 - Parking Policies	The Project would not provide excessive parking; it proposes the number of spaces required by the City's Zoning Ordinance, and approximately 40 public spaces (see Section 4.14, *Transportation and Traffic* of this Draft EIR).	Yes
TR14 – Cars and Light Trucks	EV charging spaces will be provided on-site in proposed parking garages.	Yes
TR15 – Public Outreach and Education	The TDM Program includes a Commute Assistance Center that would be staffed 4 hours per week and features a transit brochure rack, trip planning assistance, and a Bike to Work Program and Discounts.	Yes, with implementation of project TDM program
EN2 – Decrease Electricity Demand	The Project will be designed to a LEED silver standard and will meet all new state energy requirements.	Yes
BL1 – Green Buildings	See above discussion for EN-2	Yes

TABLE 4.2-5 (Continued)
PROJECT CONSISTENCY WITH APPLICABLE CONTROL MEASURES OF THE 2017 CLEAN AIR PLAN

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
BL2 – Decarbonize Buildings	Implemented through Peninsula Clean Energy, businesses have the ability to choose 50 percent renewable and 85 percent carbon-free electricity, or 100 percent renewable electricity (PCE, 2018).	Yes
BL4 – Urban Heat Island	The Project will be designed to a LEED silver standard. One option for LEED certification is green roofs which serve to reduce a building albedo and associated heat island affects.	Yes
NW2 – Urban Tree Planting	The Arborist Report prepared for the Project indicates that there are 119 trees on the Project site, and that 51 total trees would be retained on-site (Arbor Resources, 2018). As shown in **Figure 3-14, Landscape Concept Plan**, the Project would include the addition of trees throughout the Project site.	Yes
WA3 – Green Waste Diversion; and WA4 – Recycling and Waste Reduction	The City of Redwood City achieves a 75 percent waste diversion rate and businesses and multifamily properties of 5 units or more must have adequate recycling and composting service.	Yes
WR2 – Support Water Conservation	The Project will be designed to a LEED silver standard and. Indoor and outdoor water conservations are major elements of the LEED certification program.	Yes

SOURCE: BAAQMD, Clean Air Plan, Spare the Air, Cool the Climate, 2017b

The Project sponsor has also developed a Project-specific draft Transportation Demand Management (TDM) plan that supports many of the control measures identified in the *2017 Clean Air Plan*; the proposed measures are listed in this Draft EIR in Table 3-2 in Chapter 3, *Project Description*; and in greater detail in Table 4.14-18 in Section 4.14, *Transportation and Traffic,* and in Appendix F.5 to this document.

Aspects of the draft Project TDM plan include several potential strategies that are consistent with the measures the City/County Association of Governments of San Mateo County (C/CAG) has identified as acceptable and to which it has assigned peak-hour trip credits to assist effectiveness.[4] Some of the Project's TDM strategies aimed at peak hour employee trips include allowing alternative work schedules and telecommuting, local shuttle and commute bus services, bicycle storage facilities, and employee showers and changing rooms. The Project also includes an on-site amenities building will include play courts (basketball, volleyball, etc.), fitness areas for individual training, as well as rooms for various fitness classes, including spinning and yoga, and a café. These elements align with the goals of the *2017 Clean Air Plan* with regard to transit control measure implementation.

[4] While the draft TDM plan is developed by the Project sponsor, is not factored in this Draft EIR as a part of the Project for the purpose of reducing vehicle trips prior to the identification of Project impacts; it is drafted pursuant to C/CAG requirements and identified as a secondary mitigation measure to reduce intersection operations, as described in detail in Section 4.14, *Transportation and Traffic* of this Draft EIR.

Table 4.2-5 identifies the control measure and existing or proposed mechanisms that a project or surrounding local jurisdictions and transit agencies would have in place to implement these measures. Existing mechanisms or those included in the Project's draft TDM plan would be consistent with all of the relevant control measures of the *2017 Clean Air Plan*.

With elements identified as part of the Project and implementation of the draft TDM program (when approved) as mitigation, the Project would be consistent with applicable control measures from the *2017 Clean Air Plan*.

Examples of projects that could cause the disruption or delay of the *2017 Clean Air Plan* control measures are projects that would preclude the extension of a transit line or bike path, or projects that would include excessive parking beyond parking requirements. The proposed Project would provide for extension of bike facilities to the area to provide direct access to other areas within the City. The Project also proposes pedestrian and bicycle pathways through the Project site. The Project would not provide excessive parking; it proposes the number of spaces required by the City's Zoning Ordinance, and approximately 40 dedicated public spaces (see Section 4.14, *Transportation and Traffic,* in this chapter). Further, as part of the Project's proposed draft TDM plan discussed above, the Project proposes to include special parking for vanpools, carpools, electric vehicles, as well as space for shuttle stops. Bicycle parking will be distributed throughout the campus and shower facilities will be provided at the amenities building. The Project sponsor has also indicated that the Project will be designed to a LEED silver standard and will meet all new state energy requirements for both buildings and site design components.

Taken together, the proposed Project would not disrupt or hinder implementation of control measures identified in the CAP because it includes several characteristics that will help reduce single occupant vehicle trips generated — including those identified as secondary mitigation measures to address significant traffic impacts — and consequently the vehicle miles travelled due to the Project and its associated emissions. Therefore, the Project would not be considered to conflict with, or obstruct implementation of the *2017 Clean Air Plan*, and this impact would be less than significant under CEQA.

Mitigation: None Required

Impact AIR-5: The Project would result in emissions of criteria air pollutants, but not at levels that could violate an air quality standard, or contribute to an existing or projected air quality violation (Criterion b). (Less than Significant)

The emissions increase attributable to operation of the proposed Project would be primarily from the vehicle trips generated by the future occupants of the Project. In addition to exhaust emissions, vehicles would also generate PM_{10} and $PM_{2.5}$ from entrained road dust and tire and brake wear. Emissions would also be generated by on-site natural gas combustion, operation of landscape maintenance equipment, and maintenance application of paint and other architectural coatings.

Project operational criteria pollutant emissions from mobile, energy, and area sources associated with the Project were estimated using the CalEEMod model. The model was refined to reflect the Project-specific trip generation presented in Section 4.14, *Transportation and Traffic*, which considered trip reductions from the availability of transit options in the area, as well as walking and biking trips. Vehicle trip lengths from CalEEMod, which were developed with input from the BAAQMD, were used to determine the increase in vehicle miles travelled from the Project because Project-specific trip lengths are not estimated in the transportation analysis. CalEEMod default emission factors for motor vehicle trips are based on EMFAC2014 emission factors. According to the traffic analysis, the Project would result in an average increase of 8,090 daily vehicle trips to the site.

Criteria pollutant emissions from the anticipated Project-related operational sources are quantified in **Tables 4.2-6**. As shown in Table 4.2-6, estimated operational emissions would not exceed the thresholds for ROG, NOx, PM_{10} or $PM_{2.5}$. Because average daily operational emissions are less than the thresholds for NOx, ROG, PM_{10} and $PM_{2.5}$ this impact is less than significant.

TABLE 4.2-6
OPERATIONAL EMISSIONS OF THE PROPOSED PROJECT

Source	ROG	NOx	PM_{10}	$PM_{2.5}$
Average Daily Emissions (pounds/day)				
Area Sources	29.36	<0.01	<0.01	<0.01
Energy	0.65	5.9	0.45	0.45
Mobile Sources	8.36	26.15	30.95	8.51
Total Project Emissions	38.37	32.05	31.40	8.95
Daily Significance Threshold	**54**	**54**	**82**	**54**
Significant?	**No**	**No**	**No**	**No**

SOURCE: ESA, 2018

Mitigation: None Required

Impact AIR-6: The Project operations would generate toxic air contaminants (TACs), including diesel particulate matter, and carbon monoxide exposure, but would not expose sensitive receptors to substantial air pollutant concentrations (Criterion d). (Less than Significant)

The Project site is located adjacent to Highway 101, which a source of TACs in the area. However, the Project does not propose any sensitive land uses such as residences, schools, hospital, or day care centers. Office uses are generally considered less sensitive because they do not involve private residences, children, or the elderly for extended periods of time.

Operational Health Risk Impacts of the Project

The Project would result in vehicle trip generation that would primarily be gasoline powered and would not be a significant source of TACs. Impacts from Project operation are expected to be minimal due to the use of natural gas (not diesel) fired generators, which emit only negligible levels of TACs.

The BAAQMD considers roads with less than 10,000 vehicles per day "minor, low-impact" sources that do not pose a significant health impact even in combination with other nearby sources and recommends that these sources be excluded from the environmental analysis. The Project's 8,090 daily vehicle trips would be distributed over the surrounding roadway network and would not add to any one roadway segment. Given the absence of sensitive receptors in the area, the increase in traffic due to the Project would not result in significant exposure of receptors to substantial pollutant concentrations of TACs.

Other Pollutant Exposure

The Project would result in on-road mobile traffic that could result in localized carbon monoxide (CO) exposure, and therefore contribute to the common public health effects discussed in Section 4.2.1 under the subheading *Air Pollutants of Concern*. The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's CEQA Guidelines, a proposed project would result in a less-than significant impact due to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

The proposed Project would not conflict with the C/CAG's program for designated roads or highways, a regional transportation plan, or other agency plans. Per C/CAG guidelines, the Project sponsor has developed a draft TDM plan for the Project (see Appendix F.5 to this EIR). In addition, traffic volumes at affected intersections in the vicinity of the Project site are less than 44,000 vehicles per hour. The transportation analysis indicates that the highest volume intersection in the Project area is Woodside/Broadway/101 SB Off-Ramp with an existing volume of 5,215 and a with-project volume of 5,391 vehicles per hour during the AM peak hour. The Project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not result in localized CO concentrations that exceed State or federal standards.

Based on the BAAQMD criteria, Project-related traffic would not lead to violations of the CO standards; therefore, no further analysis was conducted for CO impacts of the Project at

project-impacted intersections. This impact would be considered less than significant on a project-level and cumulative basis.

Mitigation: None Required

Impact AIR-7: The Project would not create objectionable odors that would affect a substantial number of people (Criterion e). (Less than Significant)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities (BAAQMD, 2017a). There are no odor sources associated with the existing Project site and the proposed Project would not create any new source of odors, as the Project would construct an office campus. Therefore, operational odor impacts of the Project would be less than significant.

Mitigation: None Required

4.2.6 Cumulative Impacts

Impact AIR-1.CU: Development of the Project, combined with cumulative development citywide, would result in cumulative air quality impacts (Criteria a and c). (Significant)

Consistency with Clean Air Plan

Regional air pollution is by its very nature, largely a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality, and corresponding health effects, on a cumulative basis. The Bay Area's nonattainment status with respect to ozone and particulate matter is a result of past and present development within the Bay Area. Ambient air quality standards are violated or approach nonattainment levels due to past development that has formed the urban fabric, and plans for attainment of standards in the future can be jeopardized by increasing emissions-generating activity in the region. Therefore, all new development in the Bay Area that results in an increase in air pollutant emissions above those assumed in regional air quality plans contributes to cumulative air quality impacts.

As discussed in Section 4.9, *Land Use and Planning,* and other sections of this Draft EIR, the Redwood City General Plan's development assumptions for the "Redwood Creek/Harbor Center" area (which generally encompasses the Project site), are generally consistent with the Project. The associated land use changes and population and employment projections proposed in the General Plan formed the basis of air quality planning for the area in the *2017 Clean Air Plan*. While similar in overall development assumed, the Project requires amendments to the General Plan and zoning to accommodate maximum theoretical buildout of the Project, and therefore is not considered to be fully consistent with assumptions in the *2017 Clean Air Plan* to achieve attainment of ozone and particulate matter standards. Therefore, development as proposed under

the Project would be *conservatively* considered to lead to a cumulatively significant air quality impact and corresponding health effects. The impact would be significant.

Project Contribution to Cumulative Effects

No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts, and while its emissions may be individually limited, it could be cumulatively considerable when taken in combination with past, present, and future development projects (BAAQMD, 2017a).

The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project leads to a significant impact individually, the project would also be considered to contribute significantly to the cumulative impact.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (SJVAPCD, 2014), a CEQA air quality analysis of criteria air pollutants is based on significance thresholds that were set at emission levels tied to the region's attainment status. The significance thresholds are emission levels at which stationary air pollutant sources permitted by the air district must offset their emissions. Such offset levels allow for regional growth while keeping the cumulative effects of new sources at a level that will not impede attainment of the NAAQS. Therefore, a CEQA air quality analysis of criteria air pollutants is essentially an analysis of regional, cumulative air quality impacts. Because of the complexity of O_3 formation and the non-linear relationship of O_3 concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is infeasible to convert specific emissions levels of NOx or ROGs emitted in a particular area to a particular concentration of O_3 in that area (SJVAPCD, 2014). Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of O_3 (SCAQMD, 2014; SJVAPCD, 2014). Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify O_3-related health impacts caused by NOx or ROG emissions from local level (project level). Notwithstanding this scientific uncertainty, project-level mass emission thresholds have been established for ozone precursors (NOx and ROG) and other criteria pollutants. As discussed in Impacts AIR-1 and AIR-5, the Project would not exceed project-level significance thresholds for construction or operational criteria pollutant emissions, with the implementation of **Mitigation Measures AIR-1A, AIR-1B, and AIR-1C** to reduce construction emissions of NOx to less than significant. Therefore, the contribution of the Project to the cumulative, regional air quality impacts related to criteria pollutants would not be considerable, and the Project's contribution to any cumulative air quality impacts would be less than significant.

The Project's incremental increase in localized TAC emissions resulting from new vehicle trips would be minor (Impact AIR-6). The Project would not contribute substantially to cumulative TAC emissions that could affect nearby existing and nearby proposed sensitive land uses. Therefore, the Project's contribution to any cumulative air quality impacts related to exposure to TACs would be less than significant.

Mitigation Measure AIR-1.CU: Implement **Mitigation Measures AIR-1A and AIR-1B**.

Significance after Mitigation: Significant and Unavoidable

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4.3 Biological Resources

This section evaluates the potential for development of the Project to impact biological resources. This section describes the range of biological resources within the Project site, including the Harbor View and the Blomquist Bridge areas, and the surrounding region that could potentially be affected by development of the Project. The analysis considers available terrestrial and open water habitat and wetlands distribution and evaluates the likelihood of special-status species occurrence within the Project vicinity. This section identifies the Project components that may have significant impacts on these resources, and provides mitigation measures to reduce potentially significant impacts.

4.3.1 Environmental Setting

Regional Setting

Redwood City is located in the San Francisco Bay Area–Delta Bioregion[1], as defined by the State of California's Natural Communities Conservation Program. This bioregion consists of a variety of shoreline natural communities that range from the open waters of San Francisco Bay and Delta to salt and brackish marshes, as well as upland habitats that include grassland, chaparral, and oak woodlands. The area has a Mediterranean climate with dry, hot summers and cool, wet winters.

Extensive urban and industrial development has reduced open space and connectivity of most natural communities in the San Francisco Bay region. Over many years, historic areas of tidal marsh habitat have been reduced by 80 percent, and tidal flat area (including non-vegetated mudflats and sandflats) has been reduced by 40 percent (Goals Project, 1999). In the central and south San Francisco Bay, residential housing developments and salt evaporation ponds are the most common uses of filled tidal marsh and tidal flat areas. Despite land use changes and habitat fragmentation in southern San Francisco Bay, valuable habitat islands still exist. The Don Edwards San Francisco Bay National Wildlife Refuge (NWR) protects approximately 30,000 acres of existing open bay, salt pond, salt marsh, mudflat, upland, and vernal pool habitats, located mostly in the southern Bay.

Existing Conditions

As with the region, past and ongoing development and other human activities have altered natural vegetative patterns or otherwise limited large expanses of most natural communities along the shore of San Francisco Bay. Vegetation communities found at the Harbor View area include ornamental landscaping and ruderal (disturbed), while habitat types found in the vicinity of Blomquist Bridge include ornamental landscaping, ruderal, tidal marsh, and shallow bay/channel.

[1] A bioregion is an area defined by a combination of ecological, geographic, and social criteria and consists of a system of related interconnected ecosystems. The Bay-Delta bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by the northern edge of Sonoma and Napa Counties and the Delta and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

Communities and habitat types occurring within the Project site are described in the discussions below, along with common wildlife species typically associated with each community. **Figure 4.3-1** shows the habitat types present at the Project site.

Habitat Types in the Project Vicinity

Communities and habitat types occurring within and adjacent to the Project sites are described below. The vegetation/habitat classification presented herein is based on field observations (ESA, 2015) and the California Department of Fish and Wildlife (CDFW) *List of California Terrestrial Natural Communities Recognized by the CNDDB* (CDFW, 2010). This analysis addresses the potential new Blomquist Bridge extension to be constructed over Redwood Creek west of the Harbor View Project site that will be implemented as transportation related infrastructure through the *East 101 Fair Share Area* in which the Project site exists. As discussed below, a specific study of the potential environmental effects of the bridge will occur during its City review, after the bridge is designed and construction methods are determined. The Project will contribute to its fair share of utility related infrastructure in areas north of Highway 101 as required by the City of Redwood City.

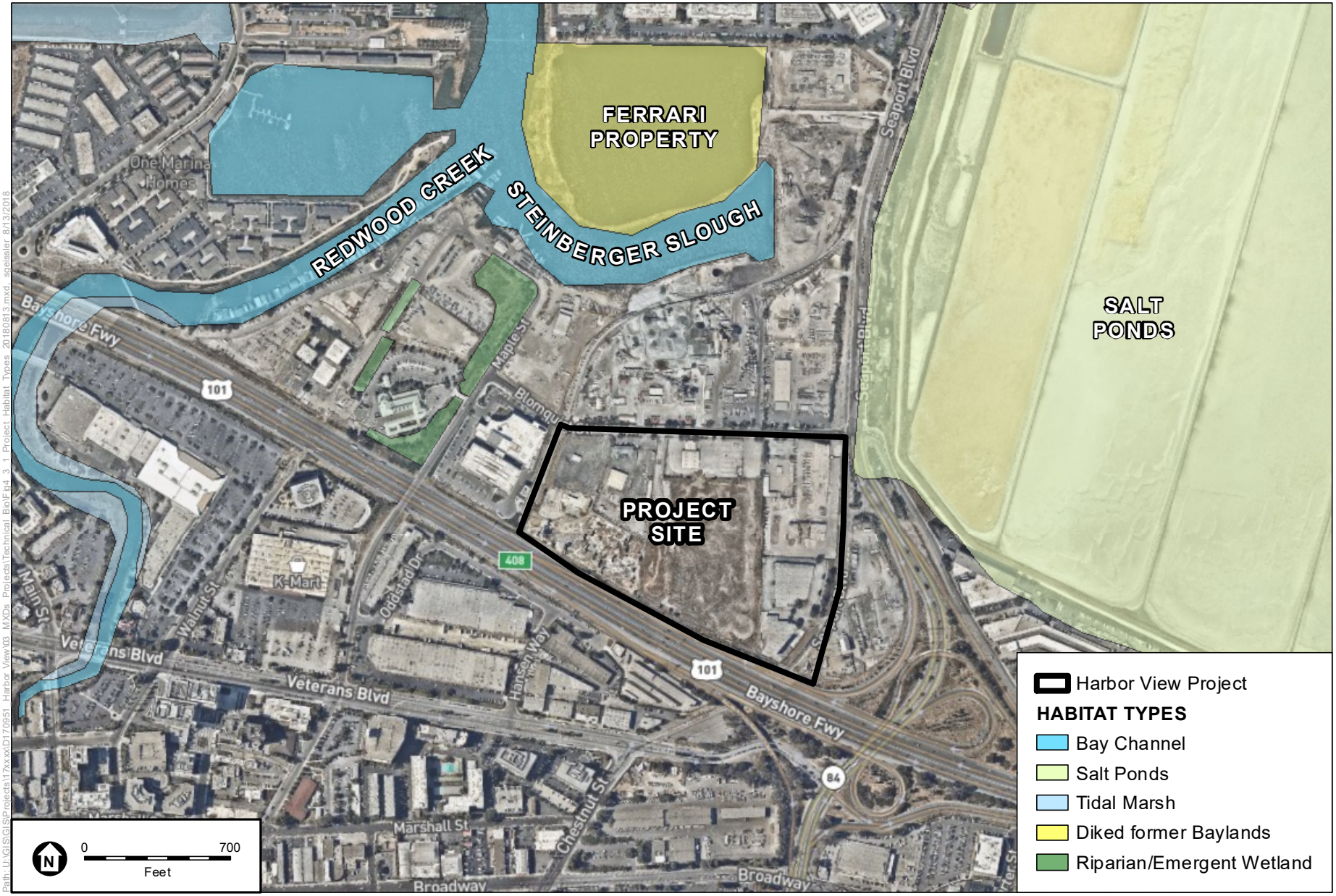
Figure 4.3-1 shows the habitat areas present in and around the Project sites and described below.

Shallow Bay and Channel

Shallow bay and channel habitat occurs in permanently flooded portions of the Bay. The habitat type in this area consists of the tidally influenced Redwood Creek earthen open channel with an approximate width of 260 feet in the vicinity of the Project. The sediments of shallow bay and channel habitat are generally mud composed of clays and silts which are exposed during low tide and provide highly valued shorebird foraging habitat. This type of habitat, found at the proposed Blomquist Bridge site, supports a diversity of invertebrates and is considered a suitable foraging area for a number of fishes, including Pacific herring (*Clupea pallasii*), Sacramento splittail (*Pogonichthys macrolepidotus*), and jacksmelt (*Atherinops californiensis*). Birds that use this habitat include western grebe (*Aechmophorus occidentalis*), canvasback (*Aythya valisineria*), and Forster's tern (*Sterna forsteri*). Harbor seal (*Phoca vitulina*) and California sea lion (*Zalophus californianus*) can also be found in these shallower waters.

Tidal Marsh

Tidal marsh habitat occurs on the margins of estuaries, lagoons, or bays with high salinity and protection from wave action. The lower margins of this habitat are exposed to air during tidal fluctuations, while higher areas can be exposed for months before being submerged. Very small patches of low marsh vegetation are located along the banks of Redwood Creek in the location of the proposed Blomquist Bridge in this habitat. Vegetation common to this community includes perennial pickleweed (*Sarcocornia pacifica* (=*Salicornia virginica*)) and ice plant (*Carpobrotus edulis*). Other vegetation common to this tidal gradient includes seaside arrow grass (*Triglochin maritimum*), saltgrass (*Distichlis spicata*), jaumea (*Jaumea carnosa*), Pacific cordgrass (*Spartina foliosa*), and smooth cordgrass (*Spartina alterniflora* and associated hybrids).



SOURCE: CDFW, 2014; ESRI, 2017.

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Figure 4.3-1
Project Habitat Types

Pickleweed- and ice plant-dominated habitat could support special status species including the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*). These areas provide food and nesting habitat for a wide variety of special status bird species, such as the saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) and Alameda song sparrow (*Melospiza melodia pusillula*). Northern harrier (*Circus cyaneus*) and white-tailed kite (*Elanus leucurus*), also considered special status, forage over salt marshes and adjoining upland areas, and American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), and Canada goose (*Branta canadensis*) occurs in marsh channels and large pans at higher tides.

Developed and Ornamental Landscaping

The developed and ornamental landscape community type includes areas occupied by buildings, roads, parking lots, and other developed facilities, as well as ornamental vegetation or heavily disturbed areas. Typically, the upland portion of the Project site consists of former tidal wetlands that have been filled and converted to upland uses including light and heavy industrial, and various other commercial facilities over the past 60 years. Highway 101 borders the southern boundary of the Project site.

Within the Harbor View Project site, the ornamental landscaping community is dominated by non-native species such as palms (*Phoenix* sp.), pine (*Pinus* sp.), bottlebrush (*Callistemon* sp.), and gum (*Eucalyptus* sp.), displacing native vegetation. Developed and ornamental landscaping occurs along the Docktown Marina parking lot, east of the proposed Blomquist Bridge; within the Harbor View Project site; and along Blomquist Street and Seaport Boulevard.

Ruderal

Ruderal vegetation occurs in areas that are subject to repeated or otherwise profound disturbance, and contain opportunistic plant species that can easily colonize and thrive with provided limited resources. Ruderal vegetation is common in the vicinity of the upland portions of the proposed Blomquist Bridge, in addition to the various locations of the Harbor View project site. Ruderal areas may include some native species, but are typically dominated by non-native and often highly invasive species. Ruderal areas provide low quality foraging or nesting habitat for birds and small mammals. Wildlife species occurring in ruderal areas are generally those that tolerate proximity to human activity and disturbance. Within the Project vicinity, wildlife utilizing adjacent higher quality habitats may forage and occasionally nest within ruderal areas.

Wetlands and Other Waters

No waters of the U.S. or state occur on the project site except for those associated with Redwood Creek. Upstream of the proposed Blomquist Bridge site, Redwood Creek continues as an open earthen tidal channel for approximately 1/2-mile until Bradford Street where the creek links to the upland urban watershed via underground culverts. The flooded channel in lower Redwood Creek varies in width, and as described above, tidal marsh vegetation lines the channel as it extends east from the Project site into shallow bay waters and an expansive wetland complex that includes Bair Island and Don Edwards National Wildlife Refuge.

Redwood Creek is regulated by the U.S. Army Corps of Engineers (Corps) under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. This feature is also regulated by the Regional Water Quality Control Board (RWQCB) as Waters of the State. In addition, Bay Conservation Development Commission (BCDC) regulates the fill, extraction of materials, and substantial changes in use of land, water, and structures within the bay and within 100 feet of the bay shoreline, which includes terrestrial or landside portions of the Blomquist Bridge site.

Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization have fragmented or separated large open-space areas. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

Wading birds such as great egret and great blue heron may also forage within Redwood Creek and may easily fly to nearby feeding locations. The creek also allows for wildlife movement within the project vicinity between the limits of local urban development and the Bay, including Don Edwards NWR. Terrestrial species will move throughout the narrow band of creek shoreline and tidal mudflats, and resident and migratory birds regularly traverse habitat along the shoreline and adjacent Bay.

Special-Status Species

A number of species known to occur in the vicinity of the Harbor View Project site and the Blomquist Bridge site are protected pursuant to federal and/or state endangered species laws, or have been designated as species of concern by U.S. Fish and Wildlife Service (USFWS) or species of special concern by CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms are collectively referred to as "special-status species," and those recorded in the Project vicinity are listed in **Table 4.3-1, List of Special-Status Species With the Potential to Occur in the Project Vicinity**.

For purposes of this evaluation, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or state endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species designated by the CDFW as species of special concern;
- Species (such as candidate species) that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines; or

TABLE 4.3-1
LIST OF SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/CRPR**	**General Habitat**	**Potential to Occur in or Near the Project Site**[a]
Fish			
Steelhead - Central California Coast DPS (*Oncorhynchus mykiss*)	FT/--/--	Ocean waters, San Francisco Bay and coastal tributaries; Migrates from Ocean through San Francisco Bay to freshwater spawning grounds.	**Low**. Project site does not provide spawning habitat; however, species may seasonally occur within adjacent Bay waters during salmonid migration.
Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha*)	FE/CE/--	Ocean waters, Sacramento River; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds.	**Low**. Project site does not provide spawning habitat; however, species may seasonally occur within adjacent Bay waters during salmonid migration.
Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)	FT/CT	Ocean waters, Sacramento River; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds.	**Low**. Project site does not provide spawning habitat; however, species may seasonally occur within adjacent Bay waters during salmonid migration.
Chinook salmon – Central Valley fall/late fall-run ESU (*Oncorhynchus tshawytscha*)	--/CSC	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds.	**Low**. Project site does not provide spawning habitat; however, species may seasonally occur within adjacent Bay waters during salmonid migration.
Longfin smelt (*Spirinchus thaleichthys*)	FC/CT/--	Drainages of central California coastal rivers.	**Moderate**. May forage in Redwood Creek and Steinberger slough.
Pacific herring (*Clupea pallasii*)	--/SMF	Shallow intertidal waters of bays, estuaries, and coastlines; including rocks, jetties, sandy beach, and pilings. SF is a major spawning ground for herring, and they are present in northern SF Bay	**Moderate**. Pier pilings in vicinity of Project site provide potential spawning habitat for Pacific herring.
Green sturgeon (*Acipenser medirostris*)	FT/CT	Green sturgeon migrate into freshwater with spawning occurring in the Sacramento River in late spring and early summer	**Low**. Green sturgeon are unlikely to occur in the Project site or immediate vicinity, as they rarely utilize habitat in South San Francisco Bay.
Amphibians			
California tiger salamander (*Ambystoma californiense*)	FT/CT/WL/--	Vernal or temporary pools in annual grasslands, or open stages of woodlands. Typically adults use mammal burrows.	**Absent.** No suitable habitat in Project site.
California red-legged frog (*Rana draytonii*)	FT/CSC /--	Streams, freshwater pools, and ponds with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources such as reservoirs and slow moving streams and needs pools of >0.5 m depth for breeding.	**Absent.** No suitable habitat in Project site.

TABLE 4.3-1 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/CRPR**	**General Habitat**	**Potential to Occur in or Near the Project Site**[a]
Reptiles			
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	FE/CE/FP/--	Most often observed in the vicinity of standing water; ponds, lakes, marshes, and sloughs. Temporary ponds and seasonal bodies of water are also used. Banks with emergent and bankside vegetation are preferred and used for cover.	**Absent.** No suitable habitat in Project site.
Birds			
Short-eared owl (*Asio flammeus*)	--/CSC/CDFW §3503.5/--	Open, flat, treeless terrain. Marshes, grasslands, or fields.	**Low (nesting).** Project site vegetation provides limited suitable habitat.
Western burrowing owl (*Athene cunicularia*)	--/CSC/CDFW §3503.5/--	Open grasslands and shrublands where perches and existing rodent burrows are available	**Low (burrow sites).** Suitable habitat found in dirt track area near highway; however, species unlikely to occur due to human activity and the isolated location of the habitat.
Western snowy plover (*Charadrius nivosus nivosus*)	FT/BCC/CSC/--	Nest on coasts and estuaries on dune-backed beaches and salt pans at lagoons/estuaries.	**Absent (nesting).** Although the species is present regionally, Project site does not provide suitable habitat.
Northern harrier (*Circus cyaneus*)	--/CSC/CDFW §3503.5/	Nests in salt or freshwater wetlands, dry upland grasslands/fields, forages over wetlands, annual grasslands.	**Low (nesting).** Low quality suitable nesting habitat present in dirt track area near highway; however, species unlikely to occur due to human activity.
White-tailed kite (*Elanus leucurus*)	FP/--/ CDFW §3503.5	Foothills and valleys with oaks, rivers, and marshes; open woodland, desert grassland.	**Low (nesting).** Low quality suitable nesting habitat present in few trees present in the Project site vicinity; however, species unlikely to occur due to human activity
American peregrine falcon (*Falco peregrines anatum*)	FD/BCC/FP/CDFW §3503.5	Wetlands, lakes, rivers, or other water bodies. Also utilizes human-made structures.	**Absent (nesting).** Specific habitat doesn't occur on site.
Alameda song sparrow (*Melospiza melodia pusillula*)	BCC/CSC/--	Salt marshes of eastern and south San Francisco Bay.	**Low.** Project site vegetation provides limited suitable habitat and species range is outside of Project site.
Double-crested cormorant (*Phalacrocorax auritus*)	WL/CDFW §3503/--	Fresh and salt water habitats and frequently nests on cliffs.	**Absent (nesting).** Suitable foraging habitat present along Bay waters; however, no nesting habitat in Project site.
Ridgway's rail (*Rallus obsoletus obsoletus*)	FE/CE/FP	Salt marsh wetlands along the San Francisco Bay.	**Low.** Low quality habitat in the vicinity of the at marsh habitat of the Project site; historically nested at nearby bay marshlands.
California black rail (*Laterallus jamaicensis coturniculus*)	BCC/ST/FP	Salt and freshwater marshes, grassy wet meadows.	**Low.** Low quality habitat in the vicinity of the at marsh habitat of the Project site; historically nested at nearby bay marshlands.
California least tern (*Sterna antillarum browni*)	FE/SE/FP	Open beaches free of vegetation along the California coast.	**Low.** Historically nested at nearby salt evaporation ponds; however, the few nesting colonies of this species in the SF Bay occur outside the Project site.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	BCC/CSC/--	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Low.** Project site vegetation provides limited suitable habitat; historically nested at nearby bay marshlands.

TABLE 4.3-1 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY

Common Name *Scientific Name*	**Listing Status USFWS/ CDFW/CRPR**	**General Habitat**	**Potential to Occur in or Near the Project Site**[a]
Birds (cont.)			
Great blue heron (*Ardea herodias*)	--/ CDFW §3503/--	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Low (nesting colony).** Could forage in tidal flats east of Project site; however, at a suitable distance to preclude impacts of potential Project disturbance. Rookery observed in transmission tower east of Steinberger Slough on Bair Island.
Mammals			
Pallid bat (*Antrozous pallidus*)	--/CSC/WBWG High	Most common in open, dry habitats with rocky areas for roosting. Very sensitive to disturbance of roosting sites.	**Moderate.** Trees and vacant structures within the Project site could provide suitable roosting habitat.
Townsend's big-eared bat (*Corynorhinus townsendii*)	--/CSC/WBWG High	Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below 3,300 meters.	**Moderate.** Trees and vacant structures within the Project site could provide suitable roosting habitat.
Hoary bat (*Lasiurus cinereus*)	--/WBWG Medium/--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	**Moderate.** Trees and vacant structures within the Project site could provide suitable roosting habitat.
Pacific harbor seal (*Phoca vitulina richardsi*)	--/MMPA	Harbor seals typically occupy shallower waters, where they feed on fish, crustaceans, and cephalopods. Mudflats, nearshore rocks, or sandy coves provide habitat for large colonies of harbor seals to haul out and rest.	**Moderate.** Bair and Greco Islands support moderate numbers of seals as haul-out and rookery habitats (Lidecker, 1997), and harbor seals have been observed foraging in the Redwood Creek channel (WRA, 2007).
Salt-marsh harvest mouse (*Reithrodontomys raviventris*)	FE/SE/FP	Dense pickleweed vegetation required with other halophytes often present.	**Low.** Isolated patches of pickleweed in the vicinity of the Project site are of low quality habitat.
California sea lions (*Zalophus californianus*)	--/MMPA	California sea lions are also present in San Francisco Bay and are one of the most abundant marine mammals along the California coast (Zeiner, 1990)	**Moderate**. California sea lions could haul out on tidal flats surrounding Bair and Greco Islands and migrate through the Project site.
Plants			
Point Reyes salty bird's-beak (*Chloropyron maritimum* ssp. *Palustre*)	--/--/1B.2	Coastal marsh habitat.	**Absent.** Suitable habitat not present at Project site.
Saline clover (*Trifolium hydrophilum*)	--/--/1B.2	Marshes, grasslands, and vernal pools.	**Low.** Project site provides limited suitable habitat.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	--/--/1B.1	Alkaline soils in valleys and grasslands.	**Low.** Threatened by invasive species and development in Project site. Observed in Ravenswood Open Preserve, approximately 7 miles south of Project site.

TABLE 4.3-1 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY

[a] **Potential to Occur Categories:**

Absent = The species' specific habitat requirements (e.g., serpentine grasslands) are not present; or the species is presumed, based on the best scientific information available, to be extirpated from the project area or region.
Low Potential = The project area and/or immediate vicinity only provide limited habitat. In addition, the species' known range may be outside of the project area.
Moderate Potential = The project area and/or immediate vicinity provide suitable habitat.
High Potential = The project area and/or immediate vicinity provide ideal habitat conditions.

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.
BCC = Bird of Conservation Concern
FSC = Federal Species of Concern
FC = Candidate for federal listing
FD= Delisted
SMF = State-Managed California Commercial Fishery

STATE:
CT = Listed as Threatened by the State of California
CE= Listed as Endangered by the State of California
CC = California Candidate for Listing
CSC = California Species of Special Concern
CFP= California Department of Fish and Wildlife designated "fully protected"

WL = Watch list
§3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)
* Special animal-listed on CDFW's Special Animal List

OTHER:

WBWG = Western Bat Working Group:
Low = Stable population
Medium = Need more information about the species, possible threats, and protective actions to implement.
High= Imperiled or at high risk of imperilment.

California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR):
1A = Presumed extirpated in California; Rare or extinct in other parts of its range.
1B = Rare, threatened, or endangered throughout range; Most species in this rank are endemic to California.
2A = Extirpated in California, but common in other parts of its range.
2B = Rare, threatened, or endangered in California but common in other parts of its range.
3 = Need more information about species to assign it a ranking.
4 = Limited distribution and therefore warrants monitoring of status.
.1 = Seriously endangered in California
.2 = Fairly endangered in California
LS= Locally Significant Species

SOURCES: CDFW, 2018; CNPS, 2018; and USFWS, 2018

- Special-status species lists were derived from the California Natural Diversity Database (CNDDB) (CDFW, 2018), U.S. Fish and Wildlife Service (USFWS, 2018), and California Native Plant Society (CNPS, 2018) database searches of the Redwood Point, Palo Alto, San Mateo, and Woodside U.S. Geological Survey 7.5-minute quadrangles.

The primary sources of data referenced for this document are as follows and can be found in **Appendix D**:

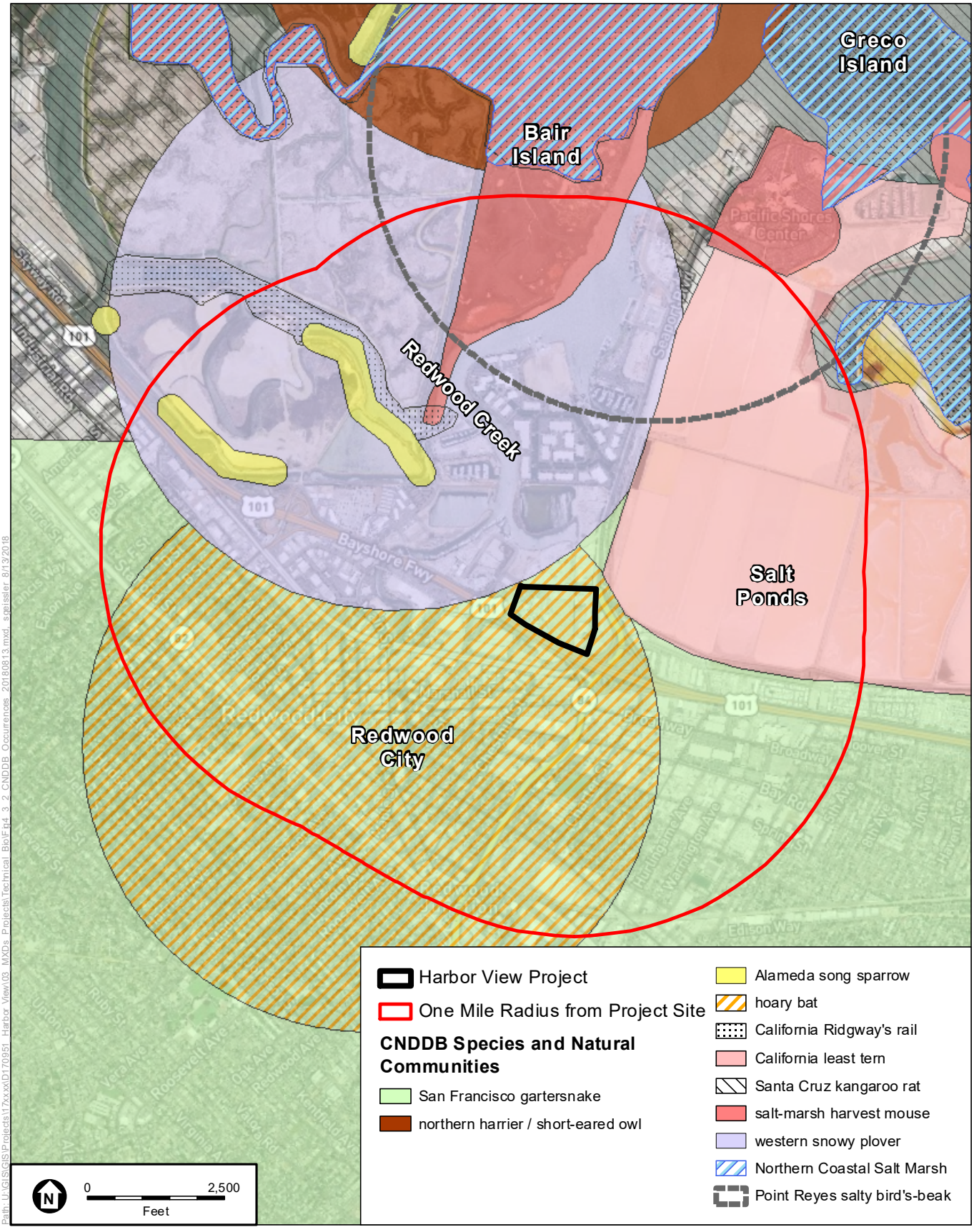
- USFWS online inventory of federally threatened and endangered species (USFWS, 2018)
- CNDDB Rarefind online program (CDFW, 2018)
- CNPS online inventory of rare and endangered plants (CNPS, 2018)
- Baylands Ecosystem Habitat Goals Report (Goals Report, 1999)
- Biological literature of the region

Special-Status Plants and Wildlife

The evaluation of potential special-status plant and wildlife species presence in this document is based on a plausible likelihood of habitat loss or construction-related disturbance from development of the Project. Based on ecological conditions that were observed during the biological reconnaissance survey of the site, the Project site does not support habitat for special-status plants; therefore, these resources are not further discussed. Special-status wildlife species with a moderate or higher potential to occur, as noted in Table 4.3-1, are described below. **Figure 4.3-2** illustrates the geographic location of special-status species occurrences recorded within one mile of the Project site.

Longfin Smelt

Longfin smelt (*Spirinchus thaleichthys*) is listed as threatened under the California Endangered Species Act (CESA) and is a candidate for listing under the Federal ESA. Longfin smelt is a small, slender-bodied pelagic fish that measures about 3 inches in length as an adult. The species generally lives for two years although some three-year smelt have been observed. Pre-spawning longfin smelt migrate upstream into the lower reaches of rivers during the late fall and winter. Smelt have adhesive eggs which are deposited on sand, gravel, rocks, submerged aquatic vegetation, and other hard substrates during spawning. Spawning typically occurs during the late winter and early spring (mid- to late February) but varies among years in response to factors such as seasonal water temperatures. During spawning each female produces approximately 5,000 to 24,000 eggs and it is estimated that total reproduction within a year is in the hundreds of millions of eggs or more (Moyle, 2002). As with most fish, mortality rates for eggs and larvae in longfin smelt are high. Those that survive to the planktonic larval stage are transported into the western Delta and Suisun Bay during the late winter and spring where juveniles rear. Longfin smelt have a two year lifecycle and reside as juveniles and pre-spawning adults in the more saline habitats within San Pablo Bay and Central Bay during a majority of their life (Moyle, 2002). Movement patterns based on catches in CDFW fishery sampling suggest that longfin smelt actively avoid water temperatures greater than 22° C (72° F) (Baxter et al., 1999). These conditions occur within



Harbor View Project . 170951

SOURCE: CDFW, 2018; ESRI, 2017.

Figure 4.3-2
CNDDB Occurrences within the Vicinity of the Project Site

ESA

the Delta during the summer and early fall, when longfin smelt inhabit more marine waters further downstream in the bays and are not present within the Delta. Longfin smelt have been recorded in low numbers in recent years in portions of South San Francisco adjacent to the Project site (IEP, 2017). As such, they have a low potential to occur within the waters of the Project site.

Pacific Herring

Pacific herring (*Culpea harengus pallasi*) is a marine fish that migrates from offshore habitats into coastal estuaries to spawn. San Francisco is a major spawning ground for herring, and they are present in northern San Francisco Bay November through March. Adult fish mobilize in deep channels within the bay until they move into shallower areas where suitable spawning microhabitat is present (Goals Project, 1999). Herring spawning occurs in waves separated by one to several weeks, and eggs are typically attached to aquatic vegetation, rocks, structures in the water, or other solid substrates (Lassuy, 1989).

Eelgrass (*Zostera marina*) and Olympia oyster beds (*Ostrea lurida*), are the two Habitat Areas of Particular Concern (HAPC) as designated by the National Marine Fisheries Service (NMFS) for the San Francisco Bay-Delta region. Eelgrass beds are especially good habitat for spawning adult herring. Both the Pacific herring and its eggs belong to an important San Francisco Bay commercial fishery, and populations are monitored closely by NMFS. Eelgrass habitat and Olympia oyster beds do not exist in the vicinity of the Project site, but rocky shore and pier pilings in the vicinity provide potential spawning habitat for Pacific herring (Merkel & Associates, 2015).

Marine Mammals

Pacific harbor seals (*Phoca vitulina richardsi*) are fairly common along the entire California coast, and are the only permanent resident marine mammals in San Francisco Bay. Harbor seals typically occupy shallower waters, where they feed on fish, crustaceans, and cephalopods. Mudflats, nearshore rocks, or sandy coves provide habitat for large colonies of harbor seals to haul out and rest. Two major pupping sites exist in San Francisco Bay; one is under the Richmond-San Rafael Bridge, and the other is in Mowry Slough near Fremont. Bair and Greco Islands support moderate numbers of seals as haul-out and rookery habitats (Lidecker, 1997), and harbor seals have been observed foraging in the Redwood Creek channel (WRA, 2007).

California sea lions (*Zalophus californianus*) are also present in San Francisco Bay and are one of the most abundant marine mammals along the California coast (Zeiner, 1990). Sea lions migrate to breeding sites in the Channel Islands and Mexico during spring, and return northward during late summer. Major haul-out sites include Año Nuevo and the Farallon Islands, and a well-known colony is present at Fisherman's Wharf on the San Francisco waterfront. California sea lions could haul out on tidal flats surrounding Bair and Greco Islands.

Breeding and Migratory Birds

Redwood City's waterfront, parks, and open space areas provide habitat for several species of birds, with some species as year-round residents, other species as winter residents, and others

passing through during spring and fall migrations. Avian diversity in Redwood City is highest in areas with relatively large-sized, diverse patches of habitat. Nonetheless, trees, shrubs, and the existing roadway bridge of Highway 101 in and near the Project provide nesting habitat for a variety of birds as well as patches of habitat for potential use by migrants as stop-over sites. Common bird species found nesting in habitat types reflective of the Project site in Redwood City include California gull (*Larus californicus*), white-crowned sparrow (*Zonotrichia leucophrys*), American crow (*Corvus brachyrhynchos*), and mourning dove (*Zenaida macroura*). As discussed in the *Regulatory Setting* below, most migratory birds are protected from purposeful harm by the federal MBTA, and most breeding bird nests in California are protected from unlawful take, possession, or destruction of the nest or eggs under the California Fish and Game Code (Section 3503).

Roosting Bats

Special-status and common bats could roost in the inactive areas on or near the Project site, due to the presence of bridges and underutilized structures. California Fish and Game Code Section 4150 states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the California Fish and Game Commission. The pallid bat (*Antrozous pallidus*) is a California Species of Special Concern and a Western Bat Working Group 'High Priority' species present in the lowest elevations in California. Preferred habitats for the pallid bat include rocky outcrops with crevices with access to open areas, but can be found in a variety of other habitats as well. Day roosts can be found in crevices, caves, mines, and occasionally hollow buildings and trees, while night roosts can be in more open areas such as open buildings or porches (Zeiner et al., 1990). Pallid bats are nocturnal and present year-round in most areas of California. The hoary bat (*Lasiurus cinereus*), a Western Bat Working Group 'Medium Priority' species, can be found at nearly any region in California. Maternity roosts of this species are typically found in woodlands with medium to large trees and dense foliage cover (Zeiner et al., 1990). Hoary bats migrate between summer and winter ranges but can be found year-round in the San Francisco Bay Area. While not common behavior, hoary bats may roost or be present on buildings or in building attics. Local occurrences for these two bat species include Stanford University, and within Menlo Park and Woodside (CDFW, 2018). The Townsend's big-eared bat (*Corynorhinus townsendii*), a California Species of Special Concern and a Western Bat Working Group 'High Priority' species, is typically found in habitats supporting caves and cave-like roosting habitat, in addition to buildings, bridges, rock crevices and hollow trees as roost sites. Over 90 percent of the species' diet consists of moths. The species has been reported in Portola Valley, ten miles west of the Project site (CNDDB, 2018).

Sensitive Natural Communities

Sensitive communities include those that are especially diverse, regionally uncommon, considered sensitive natural communities by CDFW, or are otherwise covered by state, federal, or local regulations. The CNDDB tracks the status of sensitive natural communities throughout California. Saline emergent wetland is a CNDDB sensitive natural community under the name northern coastal salt marsh, and occurs in several areas within the Redwood Point USGS 7.5-

minute quadrangle, including Bair Island inside the Don Edwards NWR. No other sensitive natural communities occur in the vicinity of the Project site.

Designated Critical Habitat

USFWS and NMFS designate critical habitat with the purpose of contributing to the conservation of threatened and endangered species and the ecosystems upon which they depend. The designation of an area as critical habitat provides additional protection to habitat only when there is a federal nexus with regard to some aspect of the project, for example, when a federal agency is implementing, or issuing a permit for, a project. Critical habitat protection is only relevant when other statutory or regulatory protections, policies, or other factors relevant to agency decision making would not prevent the destruction or adverse modification of habitat. Designation of critical habitat triggers the prohibition of destruction or adverse modification of that habitat, but it does not require specific actions to restore or improve habitat. No critical habitat occurs within the upland portions of the Project site.

Though the potential occurrence of steelhead and green sturgeon are considered low, Redwood Creek in vicinity of the Project is located within designated critical habitat for these species. Critical habitat for steelhead (California coast steelhead DPS) includes all natal spawning and rearing waters, migration corridors, and estuarine areas that serve as rearing areas accessible to listed steelhead in coastal river basins, from the Russian River to Aptos Creek (inclusive), and the drainages of San Francisco and San Pablo Bays. Also included are adjacent riparian zones, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay to the Golden Gate (NMFS, 2000). Critical habitat for green sturgeon (North American Green Sturgeon DPS) includes all accessible waters of the Sacramento River, and the Sacramento-San Joaquin Delta, and Suisun, San Pablo, and all of San Francisco Bay between the higher high water line (NMFS, 2009). As such, aquatic portions of the proposed Blomquist Bridge site occur within designated critical habitat for these two species.

4.3.2 Regulatory Setting

Federal

Endangered Species Act

The federal Endangered Species Act (ESA) protects the fish and wildlife species and their habitats that the USFWS or NMFS has identified as threatened or endangered. The term endangered refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. The term threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. The FESA prohibits the "take"[3] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

[3] From Section 3(18) of the Federal Endangered Species Act: "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; United States Code, Title 16, Section 703, Supplement I, 1989) prohibits the purposeful taking, killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The ESA defines take as "…harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species." Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction). Therefore, for projects that would not result in the direct mortality of birds, the MBTA is generally also interpreted in CEQA analyses as protecting active nests of all species of birds that are on the List of Migratory Birds, published in the Federal Register in 1995. With respect to nesting birds, while the MBTA itself does not provide specific take avoidance measures, the USFWS and CDFW over time have developed a set of measures sufficient to demonstrate take avoidance. Since these measures are typically required as permitting conditions by these agencies, they are often incorporated as mitigation measures for projects during the environmental review process. The exception is if the project, as proposed, were to incorporate and be consistent with these protections. These requirements include avoiding tree removal during nesting season, preconstruction nesting bird surveys and establishment of appropriate buffers from construction if active nests are found.

Essential Fish Habitat

The waters in the vicinity of Blomquist Bridge, as part of South San Francisco Bay, are included in the listing of essential fish habitat for a variety of pelagic, groundfish, and salmon species covered by the Coastal Pelagic Fish Management Plan (FMP), the Pacific Groundfish FMP, and the Pacific Coast Salmon FMP developed by the Pacific Fishery Management Council under the requirements of the Magnuson-Stevens Act. **Table 4.3-2** lists those fish species covered by these plans identified as utilizing Redwood Creek in vicinity of the Project, along with the life stage and relative occurrence within the Project waters as determined from CDFW unpublished IEP midwater trawl data for the years 2014-2017 (IEP, 2017).

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code, Section 2070). The CDFW also maintains a list of candidate species," which are those formally under review for addition to either the list of endangered species or the list of threatened species. The CESA prohibits the take of plant and animal species that the California Fish and Game Commission has designated as either threatened or endangered in California. "Take" in the context of the CESA means to hunt, pursue, kill, or capture a listed species, as well as any other actions that may result in adverse impacts when a person is attempting to take individuals of a listed species. The take prohibitions also apply to candidates for listing under the CESA. However, Section 2081 of the CESA allows the CDFW to authorize exceptions to the State's take prohibition for educational, scientific, or management purposes.

TABLE 4.3-2
MANAGED FISH SPECIES IN SOUTH SAN FRANCISCO BAY UNDER THE MAGNUSON-STEVENS ACT

Fisheries Management Plan	Species, Common Name	Species, Scientific Name	Life Stage*	Abundance
Coastal Pelagic	Northern anchovy	*Engraulis mordax*	J, A	Abundant
	Jack mackerel	*Trachurus symmetricus*	E,L	Rare
	Pacific sardine	*Sardinops sagax*	J, A	Present
	Jacksmelt	*Atherinopsis californiensis*	J, A	Abundant
Pacific Groundfish	English sole	*Parophrys vetulus*	J, A	Abundant
	Sand sole	*Psettichthys melanostictus*	L, J, A	Present
	Curlfin sole	*Pleuronichthys decurrens*	J	Rare
	Pacific sanddab	*Citharichthys sordidus*	E, L, J, A	Present
	Starry flounder	*Platichthys stellatus*	J, A	Present
	Lingcod	*Ophiodon elongatus*	J, A	Present
	Brown rockfish	*Sebastes auriculatus*	J	Present
	Leopard shark	*Triakis semifasciata*	J, A	Present
	Spiny dogfish	*Squalus acanthias*	J, A	Present
Pacific Coast Salmon	Chinook salmon	*Oncorhynchus tshawytscha*	J, A	Seasonally Present

NOTES:

*A = Adult; J = Juvenile; L = Larvae; E = Egg

SOURCES: Pacific Fishery Management Council. 2011. Groundfish - http://www.pcouncil.org/groundfish/background/; Salmon- http://www.pcouncil.org/salmon/background/; Coastal Pelagic- http://www.pcouncil.org/coastal-pelagic-species/background-information/. Accessed August 24, 2016. CDFW IEP unpublished midwater trawl data 1980-2014.

In accordance with CESA, an agency reviewing a project within its jurisdiction must determine if any State-listed endangered or threatened species could be present in the project area. The agency also must determine if the project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any project that could affect a candidate species.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (CNPPA), which directed the CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The CNPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The CESA expanded on the original CNPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, three listing categories for plants are employed in California: rare, threatened, and endangered.

California Fully Protected Species and Species of Special Concern

The classification of "fully protected" 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, amphibian and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The California Fish and Game Code sections (fish at Section 5515, amphibian and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with "fully protected" species states 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," although take may be authorized for necessary scientific research. This language makes the "fully protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize take resulting from recovery activities for State-listed species.

Species of Special Concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the 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 the 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 the CEQA during project review.

California Fish and Game Code

Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5. This Code states that it is "unlawful to take, possess, or destroy any birds in the order 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." Construction disturbance during the nesting 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 "taking" by CDFW. Typically CDFW recommends a 250-foot exclusion zone (buffer) around active passerine nests, and a 500-foot exclusion zone around active raptor nests. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. Project impacts to these species would not be considered significant unless they are known or have a high potential to nest in or near the Project sites or to rely on it for primary foraging. Section 3503 of the California State Fish and Game Code protects the nests or eggs of any bird, and also the rookeries of colonial nesting birds such as herons and egrets.

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would substantially divert, obstruct the natural flow of, or substantially change rivers, streams, and lakes. The jurisdictional limits of the CDFW are defined in Section 1602 of the Fish and Game Code as the "bed, channel, or bank of any river, stream, or lake." Activities that would "deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground

pavement where it may pass into any river, stream, or lake" are prohibited by the CDFW unless a streambed alteration agreement is issued. Tidal channels, such as Redwood Creek, are exempt from Section 1600; however, CDFW sometimes cites this code to exercise jurisdiction over such areas.

Wetlands and Other Waters

The Corps, acting under the USEPA, regulates the filling of wetlands and other "waters of the U.S." The Corps has primary Federal responsibility for administering regulations that concern waters and wetlands in the project area, such as Redwood Creek, under statutory authority of the Rivers and Harbors Act (Sections 9 and 10) and the Clean Water Act (CWA; Section 404).

Pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 USC 403), the Corps regulates the construction of structures in, over, or under, excavation of material from, or deposition of material into "navigable waters." Section 404 of the Federal CWA (33 USC 1251–1376) prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from the Corps. The jurisdiction of the Corps in tidal waters under Section 404 extends to the high tide line or high tide mark, simply indicating a point on the shore where water reaches a peak height at some point each year.

The California State Lands Commission is a state agency that retains review and approval authority public trust lands that are locally managed. The State Lands Commission is charged with protecting lands under its jurisdiction for public trust use, and it has the authority to issue permits for activities in its jurisdiction. As such, the State Lands Commission oversees open water areas in the region; however, Redwood Creek within the area where the proposed Blomquist Bridge overcrossing is located was granted to Redwood City in 1954. Thus, this agency does not have jurisdiction over the project.

Regional

San Francisco Bay Plan

The Bay Conservation and Development Commission (BCDC) is authorized by the McAteer-Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC implements the *San Francisco Bay Plan* (Bay Plan) and regulates filling and dredging in the Bay, its sloughs and marshes, and certain creeks and their tributaries. BCDC jurisdiction includes the waters of the bay as well as a shoreline band that extends inland 100 feet from the high tide line. Any fill, excavation of material, or substantial change in use within BCDC jurisdiction requires a permit from BCDC. The Bay Plan policies that are most relevant to the proposed project with respect to biological resources are as follows:

- **Fish, Other Aquatic Organisms and Wildlife**

  ***Policy 4(a)*:** The Commission should consult with CDFW and USFWS or NMFS whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species;

***Policy 4(b)*:** The Commission should Not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal endangered species acts, or the federal Marine Mammal Protection Act, or species that are candidates for listing under the California Endangered Species Act, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Game; and

***Policy 4(c)*:** The Commission should give appropriate consideration to the recommendations of the California Department of Fish and Game, the National Marine Fisheries Service or the United States Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.

Local

Redwood City General Plan

The following biological resources policies relevant to the Project, adopted for the purpose of avoiding or mitigating an environmental effect, are identified in the Redwood City General Plan. They are identified in the *Built Environment Element,* the *Building Community Element,* and the *Public Safety Element* of the General Plan. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***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: Minimize direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.
- ***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 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-6.5*:** Take steps to reduce urban runoff into creeks and the Bay.
- ***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*:** Preserve and create contiguous wildlife habitat and movement corridors.
- ***Policy NR-9.1*:** Preserve, maintain, and expand the number of trees in Redwood City's urban forest, on both public and private property.
- ***Policy NR-9.2*:** Require new trees to be planted and/or plant new trees in sufficient number, as identified on a site by site basis, on sites designated as sensitive receptors (i.e. schools or hospitals) that are in close proximity to industry, heavily traveled freeways and roads, and other similar pollution sources in order to mitigate air pollution.

- ***Policy NR-9.3*:** Select appropriate trees for Redwood City, focusing especially on native and landmark tree types.

Redwood City Tree Preservation Ordinance

Redwood City Municipal Code protects significant trees (Chapter 35, Tree Preservation), including any tree, sprout clump, or group of trees. Protected trees are defined as follows:

(a) Any woody plant characterized by having a single trunk of a circumference of thirty-eight inches (38") or more, measured at any point between six inches and thirty six inches above ground level, or

(b) Any woody plant characterized by having a single trunk which has been found the Park and Recreation commission to have special significance to the community, which plant shall be designated as a "heritage tree".

Redwood City Street Tree Ordinance

Redwood City Municipal Code also protects street trees or trees within the public right-of-way (Chapter 29, Article VI). The ordinance states that any tree removal in a city street or on a property adjacent to a city street requires a permit from the Park Superintendent of Redwood City. Removal will depend on conditions stated by the Park Superintendent, and will be valid for a period of six months from the issuance of the permit.

4.3.3 Project Baseline

Baseline conditions reflect the setting in the Project site as they existed at the time the Notice of Preparation for the Project was issued on January 12, 2018, as described above in the *Environmental Setting*.

4.3.4 Significance Criteria

Based on CEQA Guidelines Appendix G, a project would cause significant adverse impacts to biological resources 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 California Department of Fish and Wildlife, the National Marine Fisheries Service, or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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 tree preservation policy or ordinance; or

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

CEQA Guidelines Section 15382 identifies a significant effect on the environment as a "…substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

CEQA Guidelines Section 15065 directs lead agencies to find that a project may have a significant effect if it has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, or reduce the number or restrict the range of an endangered, rare, or threatened species.

CEQA Guidelines Section 15380 further provides that a plant or wildlife species, even if not on one of the official lists, may be treated as "rare or endangered" if, for example, it is likely to become endangered in the foreseeable future.

In addition to the above, the CDFW and USFWS consider a project to have a significant impact if it were to cause a change in species composition or result in the measurable degradation of sensitive habitats, such as wetlands.

Approach to Analysis

The analysis of the Project uses the existing biological setting; previous biological surveys, baseline reports, and literature; and database occurrence findings to assess the presence and potential impacts to biological resources criterion identified in Section 4.3.4 as a result of development of the Project.

For the purposes of this analysis, the following three principle components are considered with regard to the Project and how it relates to biological resources:

- Magnitude and duration of the impact (e.g., substantial/not substantial);
- Rarity of the affected resource; and
- Susceptibility of the affected resource to disturbance.

The evaluation of significance must also consider the interrelationship of these three components and is generally made on a case-by-case basis. For example, a relatively small magnitude impact on a state- or federally listed species could be considered significant because the species is rare and believed to be very susceptible to disturbance. Alternately, impacts to a listed or candidate

species may not be substantial because of the low magnitude, or brief duration of the effect, or low sensitivity of the affected resource to disturbance. For example, a natural community such as California annual grassland is not necessarily rare or sensitive to disturbance, and thus a much larger magnitude of impact might be required to result in a significant impact. Impacts on biological resources are considered significant when Project-related habitat modifications (e.g., development, introduction of non-native plant and animal species, increased human intrusion, barriers to movement, or landscape management) could reduce species populations to the extent that they become locally less numerous; impacts on habitats are considered significant when the habitats could not continue to support viable populations of associated plant and animal species as a result of Project implementation. Impacts are also considered significant if the effects on the resource may not be sufficiently reduced through nondiscretionary regulatory standards.

Topics Considered and Determined to Have No Impact

Based on the characteristics of the Project sites, it would not result in impacts related to the following criteria. No impact discussion is provided for this topic for the following:

- ***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*** (Criterion b). The Project would not impact any riparian habitat or other sensitive natural communities as none occur in or adjacent to the Project site.
- ***Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan*** (Criterion f). No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plan is applicable to the Project sites; therefore, the Project would not present a conflict.

4.3.5 Impacts of the Project

Impact BIO-1: The Project could adversely affect, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion a). (Potentially Significant)

Nesting or foraging habitat for listed non-avian terrestrial wildlife does not occur in the Harbor View Project site, nor does habitat to support special-status plants; therefore, these resources are not further discussed. Species considered special-status and analyzed in this EIR that have a moderate or higher potential to occur in or adjacent to the proposed Blomquist Bridge site and Harbor View Project site and be exposed to impacts resulting from development of the Project are discussed below.

Special Status Aquatic Species

The occurrence of special-status aquatic species, such as longfin smelt and Pacific herring, within or adjacent to waters of the Blomquist Bridge construction site would be temporary in nature. These fish do not permanently reside in this portion of the Bay waters; however, they have the potential to seasonally migrate through and forage in the Redwood Creek vicinity, and thus are

considered in this analysis. No impacts are anticipated to green sturgeon or steelhead, or critical habitat for these species. Marine mammals that may intermittently occur in waters under or adjacent to the Blomquist Bridge site include harbor seal and California sea lion. Impacts to special-status fish and marine mammals ranging from short-term impacts on individual animals to permanent habitat effects could occur as a result of dredging; pile driving; bridge construction; or placement of fill within the Redwood Creek. Impacts typically associated with in-water work activities may include temporary water quality degradation, increased turbidity due to in-water construction, harmful underwater sound pressure levels associated with pile-driving, short-term loss of benthic habitat and associated benthos, and short-term loss and disruption of fishery habitat.

Noise Effects from Pile Driving. Wood and steel piles that are driven within the water column can produce high-intensity noise resulting in damage to soft tissues, such as gas bladders or eyes (barotraumas) and/or result in harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or abandon temporarily forage habitat (**Table 4.3-3**). Protected and managed fish species, including salmon, longfin smelt, Pacific herring, anchovies, mackerel, sardine, soles, sanddab, and other bottom fish as well as harbor seal and California sea lion potentially use the Redwood Creek portion of the Project site as a transit corridor between the open ocean (via the Golden Gate) and South Bay.

TABLE 4.3-3
SINGLE-STRIKE SOUND LEVELS ASSOCIATED WITH DIFFERENT PILES
(MEASURED AT 10 METERS FROM PILE)

Pile Size/Type	Peak Pressure (dB)	RMS Sound Pressure (dB)	Sound Exposure Level (dB)[1]
12-inch Wood drop	177	165	157
12-inch Cast-in-shell steel (CISS) impact	190	180	165

NOTE:
[1] SEL- for 1 second of continuous driving.

SOURCE: California Department of Transportation (Caltrans). 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Final Report. Prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth and Rodkin, Inc. February 2009. http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf.

The striking of a pile by a pile-driving hammer creates a pulse of sound that propagates through the pile, radiating out through the water column, seafloor, and air. Vibratory pile drivers work on a different principal than pile-driving hammers and therein produce a different sound profile. A vibratory driver works by inducting particle motion to the substrate immediately below and around the pile causing liquefaction of the immediately adjacent sediment, allowing the pile to sink downward or removed. Vibratory pile driving is only suitable where soft substrate is present. Sound levels are typically 10-20 decibels (dB) lower in intensity relative to the higher, pulse-type noise produced by an impact hammer (Caltrans, 2009).

No design details of the proposed Blomquist Bridge over Redwood Creek are available; however, this analysis assumes the design of the of the Blomquist Bridge may require permanent in-water support footings or piers in Redwood Creek waters. Upon completion, the bridge would be

constructed so that it is entirely suspended over the open water portion of Redwood Creek, and structural support would be located in the upland ruderal portions on either side of the creek. During construction, the use of temporary pilings or shoring may be necessary to complete the construction of the bridge; however, the majority of the work would be based over-water to reduce impacts to sensitive aquatic resources.

If the Project is to utilize in-water pilings or shoring during construction; all piles or shoring will be installed by vibratory methods to the maximum extent feasible. If desired tip elevation is not achieved, impact installation methods will be used.

Scientific investigations on the potential effect of noise on fish indicate that sound levels below 183 dB SEL do not appear to result in any acute physical damage or mortality to fish (barotraumas) of any size (Dalen, J. and G.M. Knutsen, 1986). Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 150 dB RMS (Halvorsen, MB., et al, 2012). It should be noted that the acoustic thresholds have been generated for impact pile driving, no criteria for vibratory pile driving exist at this time.

Caltrans reports a range in reduction from 0 to 30 dB depending on project conditions of the potential underwater sound levels generated from pile driving under attenuated conditions such as the use of bubble curtains (Caltrans, 2009). These results suggest the use of a bubble curtain for sound attenuation has the potential to dramatically reduce the distance at which harmful sound levels travel. Additionally, during pile driving activities, fish are not expected to be present within close proximity to the construction activity, since the movement of the pile on dry land or through the shallow water and initial contact with the Bay floor will result in any fish that are present to quickly leave the immediate area. Any disturbance to FESA or CESA listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other altered normal behavior is considered harassment.

If pile driving during Project construction is to occur, **Mitigation Measure BIO-1a**: **Noise Impacts from Pile Driving** will ensure that, in the unlikely event that special-status aquatic species are present in the Project site vicinity during pile driving, the impact on these species would be less than significant with the implementation of the following measures.

> **Mitigation Measure BIO-1a: Noise Impacts from Pile Driving**
>
> The avoidance and minimization measures specific to pile driving activity, below, have been developed in accordance with the majority of the measures outlined in the 2013 NLAA program[1] criteria, in order to reduce Project effects on sensitive resources. In coordination with the City of Redwood City, a NMFS-approved biological monitor will conduct daily surveys before and during any impact hammer pile driving to inspect the work zone and adjacent waters for marine mammals. The monitor will be present as specified by NMFS during the impact pile-driving phases of construction. If no in-water activity is proposed, biological monitoring would not be required. Avoidance and

[1] U.S. Army Corps of Engineers Proposed Procedures and Criteria for Permitting Projects Under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species or Critical Habitat

minimization measures that will reduce Project noise effects, including the following, shall be implemented to the satisfaction of the City:

- To the extent feasible all piles (30-inch and 66-inch) will be installed using a vibratory hammer. Vibratory pile installation will be conducted in accordance with the USACE's "Proposed Additional Procedures and Criteria for Permitting Projects Under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California."

- Construction-related sound exposure shall be limited to 206 dB peak and 187 dB accumulated SEL for all listed fish weighing two grams or more. Conditions during all pile driving shall be monitored at approximately 33 feet (10 meters) for the first five piles driven or for two full days of pile driving, whichever is greater, to ensure that sound pressure levels comply with the sound thresholds. In the event of use of an impact hammer, or observed exceedance of the sound thresholds, a cushion, bubble curtain, jetting, or other sound attenuation method will be utilized to reduce sound levels. If sound level criteria are still exceeded with the use of attenuation methods, the contractor will revise sound attenuation methods and monitor an additional five piles or for two days of driving, whichever is greater, until demonstration of compliance is obtained, and the demonstrated methods shall be used for the remainder of the pile driving.

- If attenuation methods fail to reduce sound levels below NMFS thresholds for marine mammal harassment (160 dB root-mean-square sound pressure level [RMS] or greater for impulse sounds [e.g., impact pile driving] and 120 dB RMS for continuous noise [e.g., vibratory pile driving]), a 1,600-foot (500 meter) open-water safety zone shall be maintained. At the discretion of the resource agencies (USACE and NMFS in particular), the size or configuration of the marine mammal safety zone may change based on the findings of sound attenuation monitoring that will be performed during pile driving.

- Work activities shall be halted when a marine mammal enters the 1,600-foot safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes.

- A "soft start" technique shall be employed when initiating impact pile driving to provide marine mammals the opportunity to vacate the area.

Significance after Mitigation: Less than Significant

Localized Turbidity. The Project, through the potential in-water work associated with the construction of the Blomquist Bridge, has the potential to temporarily impair water quality conditions within and adjacent to the Project site. These construction activities may result in the short-term disturbance and resuspension of benthic sediments. Sediment resuspension has the potential to increase the exposure of potential harmful chemicals sequestered in the sediment to aquatic receptors in the immediate area, and result in adverse water quality and biological effects, including special status fish.

Suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in the sediments into the water column. However, increased turbidity levels would be relatively short-lived and generally confined to within a hundred yards of the activity. After initially high turbidity levels, sediments would disperse and background levels would be restored within hours of disturbance. In addition, normal circulation and currents within the Redwood Creek channel would rapidly circulate and disperse water temporarily affected by construction activities.

In-water or above-water work which is minimal in nature and has low potential to result in adverse effects to biological resources is proposed for year-round authorization. Activities proposed for year-round authorization, include above water bridge construction and concrete repairs (such as small repairs and coating repairs to hardware). Stormwater treatment measures during construction would be implemented in accordance with local stormwater management plans. Impacts to aquatic resources during construction as a result of increased turbidity and temporary fill would be further minimized to less than significant with the implementation of the following **Mitigation Measure BIO-1b**: **Seasonal Avoidance for Aquatic Species**.

> **Mitigation Measure BIO-1b: Seasonal Avoidance for Aquatic Species**
>
> This measure applies only to pile driving activities that are performed within aquatic habitat. Pile driving will be conducted within seasonal work windows identified to reduce potential impacts on special-status species (i.e., work will be conducted from June 1 – November 30). If any in-water work is proposed during the Pacific herring spawning or hatching season (December 1 – February 28), a CDFW approved herring monitor will monitor the Project site daily, and at any time when in-water construction activity is taking place.
>
> In the event that the on-site monitor detects herring spawning at, or within 200 meters of in-water construction activity, the in-water construction activity will be shut down for a minimum of 14 days, or until the monitor determines that the hatch has been completed and larval herring have left the site. The in-water activity may resume thereafter.
>
> **Significance after Mitigation:** Less than Significant

Water Quality. Contaminants bound to suspended sediments could also degrade water quality by reducing dissolved oxygen concentrations in the water column and contaminants could leach into the water from the sediments. Substantially depressed oxygen levels (i.e., below 5.0 mg/l) may cause respiratory stress to aquatic life, and levels below 3.0 mg/l may cause mortality. However, oxygen level depression resulting from Project construction activities is not expected to remain depressed for long periods. First, tidal flushing would be expected to ameliorate depressed oxygen levels by the ongoing introduction of oxygenated water into the Project site waters. Second, releases of anoxic (oxygen-poor) sediment would occur for relatively short time periods.

Water quality impacts could result from over-water or potential in-water construction of Blomquist Bridge over Redwood Creek. However, any water quality impacts related to the Project would be less than significant. Project compliance with NPDES General Construction

Activities Permit requirements are required by law and have proven effective in protecting water quality at construction sites. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Implementation of the SWPPP at the Project site would prevent significant construction-related impacts to water quality by ensuring that all construction activities include the implementation of BMPs that minimize the offsite discharge of sedimentation and other pollutants.

Nesting Birds. Special-status birds are not expected to nest in the Harbor View Project site or in the vicinity of the Blomquist Bridge site. Potential foraging habitat for special status bird species, such as Ridgway's rail, California black rail, double-crested cormorant, Alameda song sparrow, western snowy plover, California least tern, northern harrier, white-tailed kite, great blue heron, saltmarsh common yellowthroat, and short-eared owl is located in the saltmarsh habitat approximately 200 feet southwest of the Blomquist Bridge Project site and approximately 1,000 feet north of the Project site. Foraging habitat also occurs in the salt ponds directly east of Seaport Boulevard. These foraging areas potentially support migration patterns through the Project site; however, special-status bird species are not expected to nest in the vicinity of the Project sites due to the high level of human disturbance and fragmented nature and lack of suitable habitat.

Similarly, high ambient noise levels originating from Highway 101 and Graniterock business operations and other human disturbances surrounding the Harbor View Project site likely preclude nesting activities for many common resident and migratory birds, including raptors. However, there still is potential for construction noise and tree removal from the proposed Project to impact migratory bird and raptor nests in Canary Island pine, Mexican fan palm, gum and similarly tall densely foliaged trees found throughout the Harbor View Project site or in the vegetation bordering the Redwood Creek channel near the Blomquist Bridge site. The Highway 101 roadway bridge could also provide suitable nesting bird habitat in the bridge's overhangs or crevices. All raptors, their nests, and eggs are protected under Fish and Game Code 3503.5. In addition, Fish and Game Code 3503 protects the needless destruction of nests or eggs of most passerine bird species. Other common birds that could be found nesting in ruderal or ornamental landscape habitat, vacant commercial or industrial buildings, include Canada goose, killdeer, mourning dove, black phoebe, red-winged blackbird, rock dove, and others.

Increased noise and activity resulting from Project construction, were it to exceed ambient levels, could cause nest abandonment and death of young or loss of reproductive potential at active nests located in the vicinity of the Project sites. In addition, removal of 68 trees and other vegetation at the Harbor View Project site could result in direct losses of nests, eggs, or nestlings. Such impacts on nesting birds would be considered significant. However, implementation of **Mitigation Measure BIO-1c: Nesting Bird Measures** below would reduce impacts on nesting birds to less than significant levels.

Mitigation Measure BIO-1c: Nesting Bird Measures

The Project applicant shall conduct pre-construction nesting bird surveys for areas containing, or likely to contain, habitat for nesting birds prior to any bridge construction, tree removal, grading or construction. The City shall require the Project applicant to implement specific measures to avoid and minimize impacts on nesting birds including, but not limited to those described below.

- To the extent practicable, construction activities including building demolition, vegetation and tree removal, and new site construction shall be performed between September 1 and January 31 in order to avoid the avian nesting season. If these activities cannot be performed during this period, a preconstruction survey for nesting birds shall be conducted by a qualified biologist.
- During the avian nesting season (February 1 through August 31), a qualified biologist shall survey construction areas within and in the vicinity of the Project site for nesting raptors and passerine birds not more than 14 days prior to any ground-disturbing activity or vegetation removal. Surveys shall include all potential habitats within 500 feet (for raptors) of activities and all on-site vegetation including bare ground within 250 feet of activities (for all other species). These buffer distances may also be modified if obstacles such as buildings or trees obscure the construction area from active bird nests, or existing disturbances create an ambient background disturbance similar to the proposed disturbance.
- If active nests are found either within the Project site or within the 500-foot survey buffer surrounding the Project site, no-work buffer zones shall be established around the nests in coordination with CDFW. No demolition, vegetation removal, or ground-disturbing activities shall occur within a buffer zone until young have fledged or the nest is otherwise abandoned as determined by the qualified biologist. If work during the nesting season stops for 14 days or more and then resumes, then nesting bird surveys shall be repeated, to ensure that no new birds have begun nesting in the area.
- Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW.
- Birds that establish nests after construction starts are assumed to be habituated to and tolerant of the indirect impacts resulting from construction noise and human activity. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction.

Results of any survey shall be forwarded to CDFW (if results are positive for nesting birds) and avoidance procedures shall be adopted, if necessary, on a case-by-case basis. These may include construction buffer areas (up to several hundred feet in the case of raptors) or seasonal avoidance.

Significance after Mitigation: Less than Significant

Special-Status Bats. Bats may roost in abandoned or underutilized structures, under bridges, in trees, and may use such habitat as nurseries or winter roosting sites. Special-status bat species, including pallid bat, hoary bat, and Townsend's big-eared bat, could also potentially roost in such habitat exposed to construction related impacts associated with the Project.

Structure demolition could destroy maternity roosts were they to be located inside vacant structures on the Harbor View Project site and thereby could adversely affect reproductive success. Construction disturbance could likewise adversely affect winter roosts. Finally, tree removal and structure demolition could result in the direct mortality of special-status bats if present. The implementation of **Mitigation Measure BIO-1d: Protection of Roosting Bats** would reduce impacts on special-status bats to less-than-significant levels.

Mitigation Measure BIO-1d: Protection of Roosting Bats

The Project applicant shall take the following steps to avoid direct losses of maternity roosts, winter roosts, or individual bats and indirect impacts to bat breeding success:

- Prior to construction or demolition activities within 250 feet of trees/structures with at least a moderate potential to support special-status bats, a qualified biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding with the CDFW allowing the biologist to handle and collect bats) shall survey for bats. If no evidence of bats (i.e., visual or acoustic detection, guano, staining, strong odors) is present, no further mitigation is required.
- If bats raising pups are present within 250 feet of the Project site during project construction activities (typically April 15 through August 15), the project sponsor shall create a no-disturbance buffer acceptable in size to the CDFW around the bat roosts. Bat roosts initiated within 250 feet of the Project site after construction has already begun are presumed to be unaffected by project-related disturbance, and no buffer would be necessary. However, the "take" of individuals (e.g., direct mortality of individuals, or destruction of their roost while bats are present) is prohibited.
- Trees or structures with evidence of bat activity shall be removed during the time that is least likely to affect bats as determined by a qualified bat biologist (in general, roosts should not be removed if maternity bat roosts are present, typically April 15 – August 15, and roosts should not be removed if present bats are in torpor, typically when temperatures are less than 40 degrees Fahrenheit). Non-maternity bat roosts shall be removed by a qualified biologist, by either making the roost unsuitable for bats by opening the roost area to allow airflow through the cavity, or excluding the bats using one-way doors, funnels, or flaps.
- All special-status bat roosts that are destroyed shall be replaced at a 1:1 ratio with a roost suitable for the displaced species. The roost will be modified as necessary to provide a suitable roosting environment for the target bat species.

Significance after Mitigation: Less than Significant

Impact BIO-2: The Project's construction of the Blomquist Bridge crossing of Redwood Creek could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act or state protected wetlands through the direct removal, filling, hydrological interruption, or other means (Criterion c). (Potentially Significant)

As discussed in the *Setting* in this section, the Project sponsor would contribute to the Blomquist Bridge project as part of its community benefit. This transportation related infrastructure improvement would occur through the *East 101 Fair Share Area*. The bridge is not yet designed. As discussed below, specific study of the potential environmental effects of the bridge will occur during its City review.

San Francisco Bay is considered a navigable water of the United States and is therefore considered jurisdictional waters of the U.S. regulated by the Corps under Section 404 of the CWA up to the high tide line, and under Section 10 of the Rivers and Harbors Act up to the mean high water mark. These waters also are regulated by the RWQCB as Waters of the State and by BCDC, which has jurisdiction over all areas of San Francisco Bay that are subject to tidal action, as well as a 100-foot shoreline band. The waters of Redwood Creek and tidal marsh vegetation within the creek corridor are likely to be considered potential jurisdictional other waters and wetlands also regulated by the Corps, RWQCB, and BCDC. Construction of the Blomquist Bridge over Redwood Creek channel, could result in the fill or water quality impacts on waters of the U.S., waters of the state, or navigable waters, which would be considered a significant impact.

No design details of the proposed Blomquist Bridge over Redwood Creek are available. Construction of the bridge over Redwood Creek could impact wetlands and other waters of the U.S. and State in Redwood Creek under the jurisdiction of the Corps, RWQCB, and BCDC through temporary or permanent placement of fill material during construction, and/or installation of the bridge that would shade portions of the Redwood Creek channel, which would be a significant impact. Collectively, these regulatory agencies and the permits and authorizations they issue for the project will require that fill of wetlands and waters shall be avoided or minimized to the maximum extent practicable (e.g., design the bridge to be placed above areas defined as waters of the U.S./waters of the state) while still accomplishing the project's purpose, and will specify an array of measures and performance standards as conditions of project approval. In addition, any unavoidable impacts to wetlands and other waters will trigger a requirement for compensatory mitigation that will be aimed at creating, restoring, or enhancing similar ecological functions and services as those displaced. The types, amounts, and methods of compensatory measures required will differ between the permitting agencies depending on the specific resources they regulate and the policies and guidelines they implement.

Compliance with project permits and authorizations, and implementation of **Mitigation Measure BIO-2a, Conduct Wetland Delineation** and **Mitigation Measure BIO-2b, Avoidance and Protection of Jurisdictional Wetlands and Other Waters**, would identify potentially jurisdictional wetlands and other waters within the project site and reduce potential impacts such features to a less than significant level. Note, however, that even if no fill is proposed within jurisdictional features, BCDC authorization would still be needed for the Project due to its near proximity to the San Francisco Bay shoreline. Should avoidance of direct impacts to wetlands or other waters through placement of fill in support of the bridge be infeasible, implementation of

Mitigation Measure BIO-2c, **Compensation for Impacts to Wetlands and Waters** would reduce the impacts associated with this direct loss to a less-than-significant level.

Mitigation Measure BIO-2a: Conduct Wetland Delineation.

In coordination with the City of Redwood City, a qualified wetland ecologist shall conduct a wetland delineation of the project site to identify the limits of potential wetlands and other waters within the project study area (i.e., Redwood Creek and associated tidal marsh vegetation, and San Francisco Bay) under the jurisdiction of the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and Bay Conservation and Development Commission (BCDC). Features shall be mapped and documented in a report for submission to the Corps, RWQCB, and BCDC which retains authority over such features within and connected to San Francisco Bay.

Mitigation Measure BIO-2b: Avoidance and Protection of Jurisdictional Wetlands and Other Waters.

Access roads, staging and work areas, and infrastructure [i.e., Blomquist bridge] shall be sited to avoid and minimize direct and indirect impacts to wetlands and waters to the extent feasible. Where work will occur on the project within or adjacent to State and federal jurisdictional wetlands and waters, protection measures shall be applied to protect these features to the satisfaction of the City. These measures shall include the following:

- To the maximum extent feasible, conduct work in creek channels and associated tidal marsh vegetation during the dry season (between June 15 and October 15) to avoid construction activities in flowing streams (typically during the spring and winter). Where water features must be disturbed in support of the project (e.g., installation of a coffer dam or other temporary diversions to isolate flow from the work area), the minimum area of disturbance necessary for construction shall be identified, and the area outside of that shall be avoided.

- Stabilize disturbed, exposed slopes and creek banks immediately upon completion of construction activities [e.g., following pedestrian bridge(s) construction/installation] to prevent any soil or other materials from entering aquatic habitat. Plastic monofilament of any kind (including those labeled as biodegradable, photodegradable, or UV-degradable) shall not be used. Only natural burlap, coir, coconut or jute wrapped fiber rolls and mats shall be used.

- A protective barrier (such as silt fencing) shall be erected around wetland or water features (i.e., San Francisco Bay, Redwood Creek and associated tidal marsh vegetation) to isolate them from project construction activities and reduce the potential for incidental fill, erosion, or other disturbance. A fencing material meeting the requirements of both water quality protection and wildlife exclusion may be used;

- Signage shall be installed on the fencing to identify sensitive habitat areas and restrict construction activities beyond fenced limits;

- No equipment mobilization, grading, clearing, storage of equipment or machinery, or similar activity shall occur at the project site until a representative of City has inspected and approved the wetland/waters protection fencing;

- Ensure that the temporary fencing is continuously maintained until all construction is completed; and
- Drip pans and/or liners shall be stationed beneath all equipment staged nearby jurisdictional features overnight to minimize spill of deleterious materials into jurisdictional waters. Equipment maintenance and refueling in support of project implementation shall be performed in designated upland staging areas and work areas, and spill kits shall be available on-site. Maintenance activity and fueling must occur at least 100 feet from jurisdictional wetlands and other waters or farther as specified in the project permits and authorizations.

Mitigation Measure BIO-2c: Compensation for Impacts to Wetlands and Waters.

To offset temporary impacts, restoration to pre-project conditions (typically including contours, topsoil, and vegetation) shall be conducted, as required by regulatory permits (e.g., those issued by the Corps, RWQCB, and BCDC) and to the satisfaction of City. To offset unavoidable permanent impacts to jurisdictional wetlands and waters associated with project fill or shading, compensatory mitigation shall be provided as required by regulatory permits and at a minimum ratio of 2:1 (created/restored/enhanced: impacted). Compensation may include on-site or off-site creation, restoration, or enhancement of jurisdictional resources, as determined by the permitting agencies. On-site or off-site creation/restoration/enhancement plans must be prepared by a qualified biologist prior to construction and approved by the permitting agencies. Implementation of creation/restoration/enhancement activities by the permittee shall occur prior to project impacts, whenever possible, to avoid temporal loss. On- or off-site creation/restoration/enhancement sites shall be monitored by the City or their consultant for at least five years to ensure they successfully meet performance criteria.

Significance after Mitigation: Less than Significant

Impact BIO-3: The Project could substantially interfere 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 (Criterion d). (Less than Significant)

As discussed above, the Project site is located in a regionally-sensitive natural area, with extensive salt marsh, tidal flat, and salt pond habitats in the immediate vicinity of its commercial and industrial activities. Therefore, there is a low potential for the Project to impact resident and migratory fish and wildlife corridors or impede the use of native wildlife nursery sites.

Avian Collisions with Buildings and Night Lighting

The Project site vicinity is located within the Pacific Flyway along the western shoreline of San Francisco Bay. While exact migratory corridors through the area are unknown and vary by species, birds typically follow coastlines, rivers, and mountain ranges in their migratory passages from wintering to breeding grounds and back again. The Project site could provide foraging and roosting habitat for migratory species. Although development in the vicinity of proposed Project is currently illuminated during the nighttime and existing commercial and industrial developments and

Highway 101 have increased ambient lighting over the recent years, development proposed under the proposed Project would increase ambient light and glare levels associated with the potential use of reflective building materials, street light fixtures, nighttime lighting of commercial identification signs and logos, and increased vehicle and transit use.

Development of the Project may increase the risk of bird collisions over that posed by existing structures. For new buildings, reflective building façades that are generally located in a clear flight path from water features can create hazards for birds. Other potential feature-related hazards new development can pose to birds include glass courtyards, transparent building corners, or clear glass walls on rooftops or balconies. When considering the Project site location along a known migratory route, proximity to the bay, the large area of exterior glass surfaces, and the presence of frequent shoreline fog which can adversely affect avian navigational awareness, the Harbor View Project development could increase the risk of avian collisions. If the buildings' exterior surfaces were to be reflective and not incorporate elements to avoid or minimize avian collisions, it is foreseeable that an unknown number of songbirds or waterbirds could collide with new structures and could result in injury or fatality.

Due to recent changes to the federal MBTA, the incidental "take" of migratory bird species is not prohibited by the MBTA or Fish and Game Code (USDOI, 2017; USFWS, 2018). Because the take of migratory birds is not prohibited by CDFW or by the MBTA based on federal guidance, potential impacts to avian species from collision with new buildings would be less than significant with no mitigation required.

Nonetheless, it is recommended that the Project applicant incorporate bird safe measures into the building design that would reduce the potential for avian collisions. These include, but not limited to, the use of exterior glass treatments (use of non-reflective glass through tinting, glazing and/or fritting that reduces transmission of light out of the building), as well as exterior façade and lighting treatments.

Mitigation: None Required.

Impact BIO-4: The Project could conflict with the City of Redwood City's Tree Protection Ordinance (Redwood City Municipal Code Chapter 35.3) by removal of protected trees under certain circumstances (Criterion e). (Potentially Significant)

Conflict with Tree Ordinance

Future development under the proposed Project would result in the removal of trees and could conflict with the City's Street Tree and Tree Preservation ordinances, which have been enacted to preserve the City's urban forest and are described below. Redwood City's Tree Preservation Ordinance protects all trees growing on private property with trunk sizes that exceed 38 inches in circumference (twelve inches in diameter) and measure between six inches and 36 inches above ground. The City's Street Tree Ordinance protects all street trees growing on public property adjacent to roadways throughout the city.

The 2018 Harbor View Place Arborist Report (Arbor Resources, 2018) found 119 trees of 17 various species on the Project site. The report indicated the site is populated predominantly by Mexican fan palms, red ironbark, and Canary Island date palm. While the majority of these trees are regarded as ornamental and non-native to the area, it is anticipated that tree removal will require a permit from the City with associated permit conditions. The Project would not conflict with the City's tree ordinance, as the City's Municipal Code requires the project applicant to apply for and implement a tree removal permit (Redwood City Municipal Code 35.3) for the 68 trees to be removed, in addition to implementing **Mitigation Measure BIO-4**: **Tree Protection Measures** for the 51 trees that will remain in the Project site that could potentially be affected by construction activity. Thus, this impact would be less than significant following mitigation.

Mitigation Measure BIO-4: **Tree Protection Measures**

Adequate protection shall be provided by the Project applicant during the construction period for any trees which are to remain standing and deemed to be potentially endangered by said site work. The Project applicant will adhere to all tree protection measures applicable to the Project outlined in Section 5.0 Tree Protection Measures of the Harbor View Place Arborist Report (2018), which include but are not limited to the following:

1. Before the start of any clearing, excavation, construction or other work on the Project Site, every tree to remain and deemed to be potentially endangered by said site work ('protected tree') shall be securely fenced off at a distance from the base of the tree to be determined by the City's Parks and Recreation Director or Project arborist. This will be considered the Tree Protection Zone (TPZ) and will be consistent with the measures provided in the project's Arborist Report. Such TPZs shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

2. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the City's Parks and Recreation Director or Project arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

3. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within any protected tree TPZ, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within the TPZ of any protected tree. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

4. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

5. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Parks and Recreation Department of such damage. If, in the professional opinion of the City's Parks and Recreation Director or Project arborist, such tree cannot be preserved in a healthy state, the Director shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Director to compensate for the loss of the tree that is removed.

6. All debris created as a result of any tree removal work shall be removed by the Project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the Project applicant in accordance with all applicable laws, ordinances, and regulations.

Significance after Mitigation: Less than Significant

4.3.6 Cumulative Impacts

Impact BIO-1.CU: The Project, combined with cumulative development in the Project vicinity, would not result in significant cumulative impacts on special-status species, sensitive habitats, wildlife movement corridors, wetlands, and other waters of the U.S. (Less than Significant)

The cumulative analysis considers the effect of the Project in combination with past, present, existing, approved, pending and reasonably foreseeable future projects within and in the vicinity of the Project site (as described in Section 4.0.4, *Cumulative Analysis,* in this chapter). Cumulative projects in the Project vicinity that would involve construction and operations that could affect biological resources include those in the development forecasts conducted for this EIR based on the countywide transportation model and the US (Highway) 101/SR84 (Woodside Road) Interchange Improvement Project and other current or reasonably foreseeable future projects citywide, including the nearby Maple Street Correctional Center and several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan. Other relevant past and present projects in the cumulative context are various wetlands restoration projects, including namely the restoration of 15,100 acres of Cargill's former salt ponds (by State of California and the federal government), east of the Project site, and the California Coastal Conservancy's large-scale program to control non-native vegetation in the Bay salt marshes.

The vicinity of the Project site largely includes areas that have previously been developed. Cumulative developments, particularly those in proximity to water and natural resources, have been or will be adequately assessed for their potential to result in significant environmental effects and would be required to implement adopted mitigation measures to reduce such impacts. Other reasonably foreseeable development within the area, although likely increasing the potential to disturb existing biological resources and result in potentially significant environmental effects, would be required to comply with the same regulatory framework as the Project. Combined with implementation of all mitigation measures identified in this section for

the Project, this would reduce significant or potentially significant impacts to biological resources to less than significant.

Further, environmentally protective laws and regulations have been applied with increasing rigor since the early 1970s and include the CESA, FESA, and the CWA, as described earlier in this section. The Project, as well as other future projects within the cumulative geographic context of the Project site, would be required to comply with local, state, and federal laws and policies and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources, including waters of the State and U.S., and special-status species. Additionally, future projects would be required to demonstrate that they would not have significant effects on these biological resources, although it is possible that some projects may be approved even though they would have significant, unavoidable impacts on biological resources.

Therefore, overall, considering development of the Project, combined with effects of past, present, pending and reasonably foreseeable future projects within the geographic context for this analysis, would not result in a significant cumulative effect on biological resources to which the Project would contribute. The impact would be less than significant.

Mitigation: None Required

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4.4 Cultural Resources and Tribal Cultural Resources

This section includes a general discussion of the potential cultural resources in the Project vicinity. Discussed are the physical and regulatory setting, the baseline for determining environmental impacts, the significance criteria used for determining environmental impacts, and potential impacts associated with construction, operation, and maintenance in the Project site. Cultural resources include architectural resources, prehistoric and historic-era archaeological resources, and human remains. This section also addresses paleontological resources.

4.4.1 Setting

Paleontological Setting

Paleontological Assessment Guidelines

The Society of Vertebrate Paleontology (SVP) established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP, 1995). Most practicing paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists. Many federal, state, county, and city agencies have either formally or informally adopted the SVP's standard guidelines for the mitigation of adverse construction-related impacts on paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, indicates that geologic units of *high* paleontological potential are those from which vertebrate or significant invertebrate or plant fossils have been recovered in the past (i.e., are represented in institutional collections). Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Geologic units of *low* paleontological potential are those that are not known to have produced a substantial body of significant paleontological material. As such, the sensitivity of an area with respect to paleontological resources hinges on its geologic setting and whether significant fossils have been discovered in the area or in similar geologic units.

Paleontological Resources Potential

On a regional scale, fossilized plants, animals and microorganisms are prevalent throughout the Bay Area. For example, many of the hills in the Bay Area are made up of sedimentary bedrock that is known to contain a wide range of fossils, including radiolarians, mollusks, diatoms, foraminifers and non-marine vertebrates. In addition, even geologically young fluvial deposits have been known to contain fresh water mollusks and extinct late Pleistocene vertebrate fossils. However, the Project site overlies young Holocene-age geologic units. Beneath a cap of artificial fill lies deposits of mud and silt associated with the present-day bay estuary (Bay Mud). These types of geologic deposits are too young (i.e., less than 10,000 years old) to have fossilized the remains of organisms, or to have preserved vertebrate fossils. While the Bay Mud may contain a variety of marine invertebrate remains and organic matter (mollusks, clams, fomanifera, microorganisms, etc.), such remains are not fossilized, are likely to exist in other Bay Mud deposits all around the Bay Area, and would not be considered significant or unique. For these reasons, in accordance with SVP standards, the paleontological potential of the Project site is low.

Cultural Setting

Natural Environment

The Project site is located on the west shore of the San Francisco Bay. The surrounding hills are the source of many perennial creeks and streams that run to the San Francisco Bay. Redwood Creek, a major perennial creek to the San Francisco Bay, flows out of the west along a course that passes adjacent to the Project site boundary. The Project site is within the flood plains of these waterways and the area is prone to flooding in its natural state.

San Mateo County exhibits a Mediterranean climate, with year-round moderate temperatures, mild weather, and approximately 20 inches of rainfall per year. This type of climate is subject to recurring and sometimes long-lasting droughts. The Bay Area and the surrounding region contain an abundance of natural resources, which would have been taken advantage of by its prehistoric population. The Bay Area hosts a wide variety of natural communities, including salt marsh, scrub brush, grassland, and foothill woodlands. Deer, elk, and waterfowl were plentiful, as were marine and bay resources such as seals, otters, abalone, mussels, oysters, clams and numerous fish species. Franciscan chert was an easily obtainable local raw material for stone tools. Obsidian could be obtained from the Anadel and Napa Glass Mountain quarries north of the Bay Area (Moratto, 1984).

Geologic Context

The San Francisco Bay Area has undergone dramatic landscape changes since humans began to inhabit the region more than 10,000 years ago. Rising sea levels and increased sedimentation into streams and rivers are among some of the changes (Helley et al., 1979). In many places, the interfaces between older land surfaces and alluvial fans are marked by a well-developed buried soil profile, or a paleosol. A paleosol is formed from weathering at or near the ground surface during a period of comparative landform stability. This surface would also have been available for human occupation and use prior to subsequent sediment deposition. Paleosols preserve the composition and character of the Earth's surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archaeological resources if the area was occupied or settled by humans (Meyer and Rosenthal, 2007). Because human populations have increased since the arrival of the area's first inhabitants, younger paleosols (late Holocene, or from approximately 4,000 years before present [B.P.]) are more likely to yield archaeological resources than older paleosols (early Holocene or Pleistocene, or after approximately 14,000 B.P.). Numerous archaeological sites in the Bay Area have been found in this context.

The Project site is mapped as artificial fill over San Francisco Bay Mud (Witter et al., 2006). This depositional landform has the potential to contain deeply buried soil surfaces with associated archaeological deposits, as evidenced by archaeological sites found throughout the region either submerged by rising sea levels and/or buried by estuarine deposits. This includes one site in San Mateo County, the "Coyote Point Marina skeleton" (CA-SMA-273), identified several miles north of the Project site at over 3.5 meters beneath the Bay. Since the fill areas were created during the historic or modern period as a result of urban development (less than 150 years), archaeological sites of any age may have been destroyed, re-deposited, or completely buried by

artificial fill deposits. The identification of sites buried beneath artificial fill and/or estuarine mud is problematic because these areas consists of altered landscapes that may not currently represent historical landforms and shorelines (Meyer and Rosenthal, 2007).

Prehistoric Background

Categorizing the prehistoric period into cultural stages allows researchers to describe a broad range of archaeological resources with similar cultural patterns and components during a given timeframe, thereby creating a regional chronology. Milliken et al. (2007) provide a framework for the interpretation of the San Francisco Bay Area who have divided human history in the San Francisco Bay Area into four periods: the *Paleoindian Period* (11,500 to 8000 B.C.), the *Early Period* (8000 to 500 B.C.), the *Middle Period* (500 B.C. to A.D. 1050), and the *Late Period* (A.D. 1050 to 1550). Economic patterns, stylistic aspects, and regional phases further subdivide cultural patterns into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

The *Paleoindian Period* (11,500 to 8000 B.C.) was characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during *Paleoindian Period* has not yet been discovered in the San Francisco Bay Area. During the *Early Holocene* (*Lower Archaic*; 8000 to 3500 B.C.), geographic mobility continued from the *Paleoindian Period* and is characterized by the millingslab and handstone as well as large wide-stemmed and leaf-shaped projectile points. The first cut shell beads and the mortar and pestle are first documented in burials during the *Early Period* (*Middle Archaic*; 3500 to 500 B.C.), indicating the beginning of a shift to sedentism. During the *Middle Period*, which includes the *Lower Middle Period* (*Initial Upper Archaic*; 500 B.C. to A.D. 430), and *Upper Middle Period* (*Late Upper Archaic*; A.D. 430 to 1050), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. By the *Upper Middle Period*, mobility was being replaced by the development of numerous small villages. Around A.D. 430 a "dramatic cultural disruption" occurred evidenced by the sudden collapse of the *Olivella* saucer bead trade network. During the *Initial Late Period* (*Lower Emergent*; A.D. 1050 to 1550), social complexity developed with large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a diversity of beads and ornaments.

Ethnographic Context

Based on a compilation of ethnographic, historic, and archaeological data, Milliken (1995) describes a group known as the Ohlone, who once occupied the general vicinity of the Project site. While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these "static" descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native

adaptability and self-identity. California's Native Americans never saw themselves as members of larger "cultural groups," as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy (1978) describes the language group spoken by the Ohlone, known as "Costanoan." This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The Project site is in the greater *Ssalson* tribal area who lived in at least three main villages along San Mateo Creek (Milliken et al., 2009).

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone still have a strong presence in the San Francisco Bay Area, and are highly interested in their historic and prehistoric past.

Historic Context

The Portola expedition made the initial historic contact with the native Ohlone in the San Francisco Bay Area while in search of Monterey Bay in 1769. Eight years later Mission Santa Clara de Asís was established south of the Project site along Guadalupe Creek. In 1795 José Darío Argüello, the *comandante* of the Presidio de San Francisco, moved his cattle without church permission onto the lands now known as Redwood City. Originally referred to as *rancho de rey* ("Ranch of the King"), the lands soon became known as Rancho de las Pulgas ("Ranch of the Fleas"). Following the Mexican Revolution in 1821, Governor Pablo Vicente Sola reaffirmed the 35,240-acre grant to José Darío's son Luis Antonio (Hoover et al., 2002).

After California ceded in 1848, the United States Congress passed "An Act to Ascertain and Settle Private Land Claims in the State of California." The Act required all holders of Spanish and Mexican land grants to present their titles for confirmation before the Board of California Land Commissioners. In 1857, President Buchanan issued Luis Antonio's widow a patent to Rancho de las Pulgas. Since the 1850s the vast grant was divided into many portions and consists of the cities of San Mateo, Belmont, San Carlos, Redwood City, Atherton, and Menlo Park (Hoover et al., 2002).

Redwood City and Creek were named for the nearby Coast Redwood (*Sequoia sempervirens*) forest and lumbering industry. The Redwood Creek Channel was first used for commercial

shipping in the 1850s to transport timber from redwood forests on the peninsula to San Francisco. Ship building activities and other industries also located along the shoreline of Redwood Creek Channel. By the late 1800s, the channel was lined with wharves and associated business establishments. Particularly important was the shipment of wood products like shingles, as well as grain and livestock from surrounding agricultural areas.

The tanbark that was left behind by lumber shipping operations was utilized by local tanneries for the tanning of hides for processed leather goods. These tanneries included the Krieg Tannery (later the Beeger Tannery), the California Oak Leather Company, and the S.H. Frank Tanning Company. The S.H. Frank Tanning Company, located on the southeast side of Redwood Creek partially within the Project site, was owned and operated by the Frank family from 1880 to 1959 and employed up to 450 men. The tannery buildings were nearly all wood frame, utilitarian structures, from one to three stories in height depending upon their function, and had large brick chimneys. Most were wood construction throughout, including siding and roofing, although some buildings had metal siding. The historic buildings and structures associated with the tannery burned down in 1968 (City of Redwood City, 2010 [1]).

Currently the immediate Project vicinity encompasses a mix of recreational and watercraft uses, marinas and businesses, and contains a mix of light industrial, construction-related business and operations, and Port-related uses, in addition to a mix of public uses (e.g., County Correctional Center and City Police Department), recreational and watercraft uses, residential uses, marinas, and waterways westward of the Project site. e.

Findings

Paleontological Findings

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries not only provide a historical record of past plant and animal life, but can assist geologists in dating rock formations. Fossil discoveries can expand our understanding of the time periods and the geographic range of existing and extinct flora or fauna.

Geologic mapping of surficial deposits indicates that the Project site consists of artificial fill over San Francisco bay mud. Geotechnical investigations have determined that the bay mud ranges in thickness between 5 and 15 feet below ground surface (bgs), and is underlain by a layer of medium stiff to stiff clay, also known as older bay mud at approximately 12 to 18 feet bgs. Sandy clay, silty sand, and sand with gravel (i.e. alluvial deposits) underlies the bay mud to the maximum depths explored (up to 55 feet below ground surface; ENGEO, 2012; Treadwell and Rollo, 2008). A nearby geotechnical investigation notes that Franciscan bedrock occurs at a depth of approximately 250 feet bgs (Tejima and Associates, 1989 cited in TRA, 2010). Therefore, even the deepest soil disturbances (i.e., up to 50 feet) associated with pile driving for pier-type foundations or other excavations would be confined to modern or Holocene-age deposits. Recent and modern deposits are generally considered not old enough (i.e., less than 10,000 years old) to

have fossilized the remains of organisms, or to have preserved vertebrate fossils. While the bay mud may contain a variety of marine invertebrate remains and organic matter (mollusks, clams, fomanifera, microorganisms, etc.), such remains are not fossilized, are likely to exist in other bay mud deposits all around the Bay Area, and would not be considered significant or unique. For these reasons, in accordance with Society of Vertebrate Paleontology (1995) standards, the paleontological potential of the Project site is low.

Prehistoric and Archaeological Findings

ESA completed a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System on September 23, 2013 (File No. 13-0476). The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or adjacent to the Project site; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources.

Ten cultural resources investigations have been completed in the records search radius, including two studies in the Project site. One study notes the presence of historic-era subsurface materials ("leather and hair") in the general location of the Sherriff's Work Program/County Correctional Center/homeless shelter buildings on Maple Street and the southwestern end of the Docktown Marina parking lot. These materials were likely related to Frank's Tannery (Cartier, 1977). Two studies on the south side of Highway 101 also noted materials and foundations related to Frank's Tannery. Following a subsurface investigation, archaeologists concluded that the materials were highly disturbed, likely as a result of the tannery fire and subsequent grading of the building remains, and did not constitute a significant historic-era archaeological deposit (Dietz, 1978). Based on these previous investigations, historic-era archaeological sensitivity is considered low.

No recorded prehistoric archaeological sites are located in or adjacent to the Project site. The nearest prehistoric sites are over one mile to the east and south. During the recent historic-era the Project site would have been marshland, subject to periodic flooding. Late Period prehistoric occupation was established along more stable landforms to the south and east as indicated by known prehistoric sites in the vicinity. Earlier prehistoric sites may be buried by estuarine deposits and/or artificial fill; however as noted above, archaeological sites buried by recent depositional landforms may be destroyed or re-deposited. Additionally the dynamic bay environment would have been more likely to destroy archaeological sites than nearby stable landforms covered by alluvial deposits. For these reasons, prehistoric archaeological potential of the Project site is considered low.

Table 4.4-1 shows the cultural resource studies within proximity of the Project site.

In 2015, on behalf of Redwood City, ESA contacted Native American Heritage Commission (NAHC) for a search of the Sacred Lands Inventory. The response of the NAHC was negative for the presence of sacred sites. Per Senate Bill 18 requirements, the City sent letters dated March 27, 2015, requesting additional information from locally knowledgeable Native Americans.

TABLE 4.4-1
CULTURAL RESOURCES STUDIES WITHIN ONE-HALF-MILE OF THE PROJECT SITE

Study No.	Title	Author	Year	Location	Findings
S-3013	Archeological Reconnaissance for the Proposed Addition to the San Mateo County Work Furlough Facility Parcel APN 52-532-020 off Maple Street, San Mateo County.	Cartier	1977	West of the Project Site	Negative for prehistoric resources; Historic-era materials related to tannery
S-3042	An Archaeological Survey of a Proposed Interchange Modification	Caltrans	1977	West of Project Site	Negative
S-3053	Letter Report for Terranomics Corporation	Dietz	1978	South of Project Site	Negative for prehistoric resources; Noted potential for historic-era materials and foundations related to tannery (recommended subsurface testing as S-8657, see below)
S-3154	Archaeological Report for Leslie Salt Wash Pond, Redwood City, California	Ecumene Associates	1981	North of Project Site	Negative
S-8657	Letter Report for Terranomics Corporation	Dietz	1978	South of Project Site	Subsurface trenching for historic-era materials and foundations related to tannery; Extensive disturbance, no further investigation required
S-23534	Bair Island Unit Don Edwards San Francisco Bay National Wildlife Refuge, Cultural Resources Review for Restoration and Management Planning	Cultural Resources Team, USFWS	2000	Northwest of Project Site	Low potential for prehistoric resources; Potential for historic-era sites including early fishing industry, transportation, levees and water control structures
S-25081	Archaeological Survey for 101/Seaport, 8211.30	Holson	2002	East of Project Site	Negative
S-38063	Smart Corridors Geoarchaeological Sensitivity Research	LSA	2009	South of Project Site	General sensitivity assessment; negative near Plan Area
S-38844	Summary of Findings of an Archaeological Study of the Marina Shores Village Project Area, Redwood City, San Mateo County, California	Holman and Ambro	2002	West of Project Site	Negative
S-39501	Archaeological Survey for the 48-inch Force Main Reliability Improvement Project, Cities of San Carlos and Redwood City, San Mateo, California	Psota	2012	West of Project Site	Project Site determined an “Area of Interest” due to presence of historic-era materials related to tannery; Archaeological monitoring recommended

For this EIR, according to the requirements of Assembly Bill 52, on August 6, 2018, ESA again sent letters on the City's behalf to NAHC, which responded on that same date restating its negative finding for the presence of sacred sites, and provided a list of six Native American tribes who may have knowledge of resources in the Project area. ESA also mailed letters of inquiry to each tribe on August 6, 2018. No responses have been received as of this writing.

Architectural Findings

There are no recorded historic-era architectural resources within the Project site. One resource, the Inner Bair Island Levee (NWIC designation P-41-002295), is located approximately one-quarter mile northwest of the Project site. The levee was evaluated as part of the early salt production activities at Bair Island and found to be ineligible for listing to the National Register of Historic Places (Psota, 2012).

ESA completed a reconnaissance level architectural survey of the Project site on August 15, 2013. Based on the reconnaissance survey and a review of historic aerial photography conducted at that time, the buildings on the Project site were industrial and commercial and constructed within the past 50 years, and as such, they would not meet the minimum age threshold for potential listing in the national, state, or local registers of historical resources.

The Project site contains no recorded architectural resources or those meeting the criteria for listing in the national, state, or local registers.

4.4.2 Regulatory Setting

Federal Regulations

Archaeological resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f), and its implementing regulations. Prior to implementing an "undertaking" (e.g., federal funding or issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties [(i.e. properties listed in or eligible for listing in the National Register of Historic Places (National Register)] and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. Under the NHPA, a property is considered significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) That are associated with the lives of persons significant in our past, or
>
> c) That 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 individual distinction, or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. This process is the responsibility of the federal lead agency. The Section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800):

- Identify historic properties in consultation with the State Historic Preservation Officer (SHPO) and interested parties;
- Assess the effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the ACHP; and finally,
- Proceed with the project according to the conditions of the agreement.

California State Regulations

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Environmental Quality Act

CEQA, as codified in Public Resources Code (PRC) Sections 21000 et seq., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a proposed project would have a significant effect on historical resources, including archaeological resources. The CEQA *Guidelines* define a historical resource as: (1) a resource in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that 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, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA *Guidelines* Section 15064.5 would apply. If an archaeological site does not meet the CEQA *Guidelines* criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly

demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person" (PRC Section 21083.2 [g]).

The CEQA *Guidelines* note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA *Guidelines* Section 15064[c][4]).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility to the California Register are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for or listed in the National Register.

To be eligible for the California Register a historical resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

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 (PRC Section 5024.1[c]).

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance.

California Public Resources Code

In addition to the definition of "unique archaeological resources" in PRC Section 21083.2, sections of the PRC that are applicable include:

- *PRC Section 5097.5* – any unauthorized removal or destruction of archaeological, paleontological resources on sites located on public lands[1] is a misdemeanor.
- *PRC Section 5097.99* – prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn; sets penalties.

In September 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, Assembly Bill 52 now requires lead agencies to analyze project impacts on tribal cultural resources separately from archaeological resources (PRC Section 21074; 21083.09). The Bill defines tribal cultural resources in a new section of the PRC (Section 21074). Assembly Bill 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3).

Specifically, PRC Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

    1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

    2) Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

        A. Protecting the cultural character and integrity of the resource.

        B. Protecting the traditional use of the resource.

        C. Protecting the confidentiality of the resource.

    3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

    4) Protecting the resource.

In addition, the Office of Planning and Research updated Appendix G of the State CEQA *Guidelines* to provide sample questions regarding impacts on tribal cultural resources (PRC Section 21083.09).

[1] As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority or public corporation, or any agency thereof.

California Health and Safety Code

The Project is also subject to the provisions of the California Health and Safety Code with respect to the discovery of human remains. Health and Safety Code Section 7050.5 states that "Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public Resources Code."

The measures outlined in Section 7050.5 of the Health and Safety Code and PRC Section 5097.98 are considered standard mitigation measures implemented in the event of an inadvertent discovery of human remains during excavation activities.

Senate Bill 18

Senate Bill 18 requires cities and counties to notify and consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting tribal cultural resources. Senate Bill 18 requires cities and counties to send any proposals for revisions or amendments to general plans and specific plans to those California Native American Tribes that are on the Native American Heritage Commission (NAHC) contact list and have traditional lands located within the city or county's jurisdiction. Cities and counties must also conduct consultations with these tribes prior to adopting or amending their general plans or specific plans.

Redwood City General Plan

The following policies relevant to the Project, adopted for the purpose of avoiding or mitigating an environmental effect, are identified in the *Built Environment Element* of the Redwood City General Plan. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

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

City of Redwood City Historic Resources Code

Chapter 40 of the *Redwood City Municipal Code* establishes the Redwood City Historic Preservation Ordinance, which is intended to safeguard the city's heritage by providing for the protection of historic landmarks, encouraging public knowledge of the city's history, and fostering a sense of identity in the community (City of Redwood City, 2015). An historic

landmark, historic site, or historic district may be designated by the City Council if it meets the following criteria pursuant to Section 40.5 of Chapter 40:

- It exemplifies or reflects special elements of the city's cultural, aesthetic, or architectural history; or
- It is identified with persons or events significant in local, State, or national history; or
- 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
- It is representative of the notable work of a builder, designer or architect.

The Historic Resources Advisory Committee (HRAC) advises the Redwood City Planning Commission regarding the implementation of the City's Historic Preservation Ordinance. The Committee recommends historic designation of local landmarks and districts, performs design review of changes to historic buildings and adjacent affected sites, and is involved in other historic preservation-related activities.

4.4.3 Project Baseline

Baseline conditions reflect the setting in the Project site as they existed at the time the Notice of Preparation (NOP) for the Project was issued on January 12, 2018, as described above in the Environmental Setting.

4.4.4 Significance Criteria

Based on CEQA *Guidelines*, a project would cause adverse impacts to cultural/tribal resources if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA *Guidelines* Section 15064.5;

b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA *Guidelines* Section 15064.5;

c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature;

d) Disturb any human remains, including those interred outside of formal cemeteries; or

e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074.

According to the CEQA *Guidelines* Section 15064.5(a)(3), in general, a resource shall be considered "historically significant" if the resource meets the criteria for listing on the California Register (PRC Section 5024.1). This section also provides standards for determining what constitutes a "substantial adverse change" that must be considered a significant impact on historical resources.

In addition, a resource included on a local register of historical resources, as defined by PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), shall be presumed to be historically or culturally significant.

Approach to Analysis

Architectural/Structural Historical Resources

Potential impacts on architectural resources are assessed by identifying any activities such as new construction, demolition, or substantial alteration that could affect resources that have been identified as historical resources for the purposes of CEQA. A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in (or eligibility for inclusion in) the California Register or a qualified local register (CEQA *Guidelines* Section 15064.5[b][2]). As discussed in the previous setting, the Project site contains no recorded architectural resources or those meeting the criteria for listing in the national, state, or local registers - historical resources for CEQA purposes.

Archaeological Resources

The significance of most prehistoric and historic-period archaeological sites is usually assessed under National Register and California Register Criterion D/4. This criterion stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may qualify as historical resources under the definition provided in CEQA *Guidelines* Section 15064.5[a], or they may also be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions (PRC Section 21083.2). A substantial adverse change in the significance of an archaeological resource is assessed similarly to other historical resources, i.e., by destroying or materially altering in an adverse manner those physical characteristics of the resource that convey its significance under the appropriate criteria (CEQA *Guidelines* Section 15064.5[b][2]).

Paleontological Resources

The paleontological analysis identifies the potential to encounter paleontological resources (i.e., plant, animal, or invertebrate fossils or microfossils) during excavations associated with the Project. The paleontological potential of the geologic units to be disturbed is used to evaluate the potential to encounter paleontological resources at the location of each improvement or potential land use. A potentially significant impact on paleontological resources would occur if:
(1) construction of the Project would move or excavate previously undisturbed geologic bedrock (native rock) and/or (2) the bedrock to be disturbed has a high paleontological potential.

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in State Regulations. This analysis considers impacts including intentional disturbance, mutilation, or removal of interred human remains.

Tribal Cultural Resources

Tribal cultural resources are defined as a site feature, place, cultural landscape, sacred place or object, which is of cultural value to a tribe that is either on or eligible for the California Register or a local historic register, or the lead agency, at its discretion, chooses to treat the resource as a tribal cultural resource. Impacts on tribal cultural resources are assessed in consultation with the affiliated Native American tribe in accordance with PRC Section 21080.3. This analysis considers whether the Project would cause damaging effects to any tribal cultural resource, including archaeological resources and human remains.

4.4.5 Impacts of the Project

Historical Resources

Impact CUL-1: The Project would not result in the physical demolition, destruction, relocation, or alteration of historical resources that are listed in or may be eligible for listing in the federal, state, or local registers of historical resources (Criterion a). (No Impact)

The proposed Project development area contains no recorded historical resources or those meeting the criteria for listing in the national, state, or local registers. All of the structures on the Project site were constructed within the past 50 years, and as such, they would not meet the minimum age threshold for potential listing in the national, state, or local registers of historical resources. As there are no historical resources as defined by CEQA Section 15064.5 on the proposed Project site, implementation of the proposed Project would have no impact on historical resources.

Mitigation Measure: None Required

Archaeological Resources

Impact CUL-2: The Project could result in significant impacts to unknown archaeological resources (Criterion b). (Potentially Significant)

The proposed Project development area contains no recorded archaeological resources, and the sensitivity for the existence of such resources and remains on the Project site is low. Although unlikely, the inadvertent discovery of these resources on the Project site during ground-disturbing construction cannot be entirely discounted. Disturbance of such resources and remains would be a potentially significant impact. However, the Project's potential to encounter previously unrecorded resources would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-2**.

Mitigation Measure CUL-2: **Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources.**

If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of Redwood City shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery.

If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA *Guidelines*) or cause a substantial adverse change in the significance of a tribal cultural resource (defined in Public Resources Code Section 21074), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA *Guidelines*, with a preference for preservation in place. If preservation in place is feasible, this may be accomplished through one of the following means: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource before building appropriate facilities on the resource site; or (4) deeding resource site into a permanent conservation easement.

If avoidance or preservation in place is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with City of Redwood City and, for prehistoric resources, the appropriate Native American representative to recover the scientifically consequential information from and about the resource, which shall be reviewed and approved by the City prior to any excavation at the resource site. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Significance after Mitigation: Less than Significant

Paleontological Resources

Impact CUL-3: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (Criterion c). (Potentially Significant)

The proposed Project development area contains no recorded paleontological resources, and the sensitivity for the existence of such resources and remains on the Project site is low. As with the other resources discussed in this section, although unlikely, the inadvertent discovery of these resources on the project site during ground-disturbing construction cannot be entirely discounted.

Disturbance of such resources and remains would be a potentially significant impact. However, the Project's potential to encounter previously unrecorded resources would be reduced to a less-than-significant level with implementation **Mitigation Measure CUL-3**.

> **Mitigation Measure CUL-3: Inadvertent Discovery of Paleontological Resources.**
>
> If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Redwood City.
>
> **Significance after Mitigation:** Less than Significant

Human Remains

Impact CUL-4: The Project could disturb human remains, including those interred outside of formal cemeteries (Criterion d). (Potentially Significant)

Although unlikely, the inadvertent discovery of human remains on the project site during ground-disturbing construction cannot be entirely discounted. Disturbance of such remains would be a potentially significant impact. However, the Project's potential to encounter previously human remains would be reduced to a less-than-significant level with implementation of the **Mitigation Measure CUL-4**.

> **Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains.**
>
> In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the San Mateo County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Redwood City for the appropriate means of treating the human remains and any grave goods.
>
> **Significance after Mitigation:** Less than Significant

Tribal Cultural Resources

Impact CUL-5: The Project could result in significant impacts to unknown tribal cultural resources (Criterion e). (Potentially Significant)

The proposed Project development area contains no recorded tribal cultural resources, and the sensitivity for the existence of such resources and remains on the project site is low. Although

unlikely, the inadvertent discovery of these resources on the project site during ground-disturbing construction cannot be entirely discounted. Disturbance of such resources and remains would be a potentially significant impact. However, the Project's potential to encounter previously unrecorded resources would be reduced to a less-than-significant level with implementation of **Mitigation Measure CUL-2**.

Mitigation Measure: Implement **Mitigation Measure CUL-2**.

Significance after Mitigation: Less than Significant

4.4.6 Cumulative Impacts

Impact CUL-1.CU: The Project, in combination with cumulative development in the vicinity of the Project site, would contribute to a significant adverse cumulative impact to cultural resources, but the contribution would not be considerable. (Potentially Significant)

The geographic scope for cumulative impacts on cultural resources includes potential cultural resources in the Project site and the City of Redwood City. Development of the Project would contribute to cumulative impacts on cultural resources, including archaeological and paleontological resources, if the Project and other projects in the vicinity adversely affect the same cultural resources or would cause impacts on other cultural resources in the Project vicinity.

Historical Resources

As discussed in Impact CUL-1, the Project would not affect any historical resources. Thus, neither would contribute to a potential cumulative impact on historical resources; no cumulative impact is identified.

Archaeological Resources, Paleontological Resources, Human Remains, and Tribal Cultural Resources

As discussed in Impacts CUL-2, CUL-3, CUL-4 and CUL-5 for the Project, excavation associated with the Project site would have a potentially significant impact related to the potential to encounter previously unrecorded archaeological resources, paleontological resources, human remains interred outside of a formal cemetery, and/or tribal cultural resources. Cumulative projects in the Project vicinity that would also involve excavation include those in the development forecasts conducted for this EIR based on the countywide transportation model and the US 101/SR84 (Woodside Road) Interchange Improvement Project and other approved, pending, and reasonably foreseeable future projects citywide, several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan (see Section 4.0.4 *Cumulative Analysis* in this chapter for detail). These projects could also encounter previously unrecorded archaeological resources, paleontological resources, human remains, or tribal cultural resources, which would be a potentially significant cumulative impact, and the Project's contribution to this impact would be cumulatively considerable.

However, as discussed in Impacts CUL-2, CUL-3, CUL-4 and CUL-5 for the Project, the potential to encounter previously unrecorded resources and human remains would be reduced to a less-than-significant level with implementation of **Mitigation Measures CUL-2 (Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources)**, **CUL-3 (Inadvertent Discovery of Paleontological Resources)**, and **CUL-4 (Inadvertent Discovery of Human Remains)**. These measures require the City or the Project applicant to halt work if any potential resources are discovered during construction. If it is determined that an archaeological or paleontological resource may be present within the Project site, the City or the Project applicant is required to retain the services of a qualified archaeological or paleontological consultant to evaluate the find. With regard to the inadvertent discovery of human remains, in particular, the San Mateo County coroner must be notified immediately, and, in the event the coroner determined that the remains were Native American, the NAHC must be notified. Implementation of these measures would effectively avoid damage to or loss of resources, and little to no residual impact would remain after mitigation.

With implementation of these mitigation measures, the Project's contribution to this cumulative impact would not be cumulatively considerable and thus less than significant.

Mitigation Measure CUL-1.CU: Implement **Mitigation Measures CUL-2**, **CUL-3**, and **CUL-4**.

Significance after Mitigation: Less than Significant

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4.5 Geology and Soils

This section presents geologic, soils and seismic conditions in the Project vicinity and evaluates the potential for the development of the Project to result in significant impacts related to exposing people or structures to unfavorable geologic hazards, soils, and/or seismic conditions. A review of the applicable regulatory framework for the Project is also provided. Potential impacts are discussed and evaluated, and appropriate mitigation measures are identified where necessary. Site-specific reports for the Project site were used to compile the description of existing conditions for the Project site.

CEQA requires the analysis of potential adverse effects of a project on the environment. While potential effects of the environment on the project are arguably not required to be analyzed or mitigated under CEQA, this section nevertheless analyzes potential effects of the geology and soils on Project implementation as set forth in CEQA Guidelines, Appendix G, Significance Criteria, and in order to provide information to the public and decision-makers. As such, the potential adverse effect of existing risk levels for expansive soils or seismic hazards on the Project is analyzed below.

4.5.1 Environmental Setting

Regional Setting

The Project site lies within the geologically complex region of California referred to as the Coast Ranges geomorphic province.[1] The Coast Ranges province lies between the Pacific Ocean and the Great Valley (Sacramento and San Joaquin valleys) provinces and stretches from the Oregon border to the Santa Ynez Mountains near Santa Barbara. Much of the Coast Range province is composed of marine sedimentary deposits and volcanic rocks that form northwest trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone. The relatively thick marine sediments dip east beneath the alluvium of the Great Valley. The Coast Ranges can be further divided into the northern and southern ranges, which are separated by the San Francisco Bay. The San Francisco Bay lies within a broad depression created from an east-west expansion between the San Andreas and the Hayward fault systems. West of the San Andreas Fault lies the Salinian Block, a granitic core that extends from the southern end of the province to north of the Farallon Islands.

The Northern Coast Ranges are comprised largely of the Franciscan Complex or Assemblage, which consists primarily of graywacke, shale, greenstone (altered volcanic rocks), basalt, chert (ancient silica-rich ocean deposits), and sandstone that originated as ancient sea floor sediments. Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma and Clear Lake volcanic fields (CGS, 2002a).

[1] A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces.

Project Setting

Geology and Soils

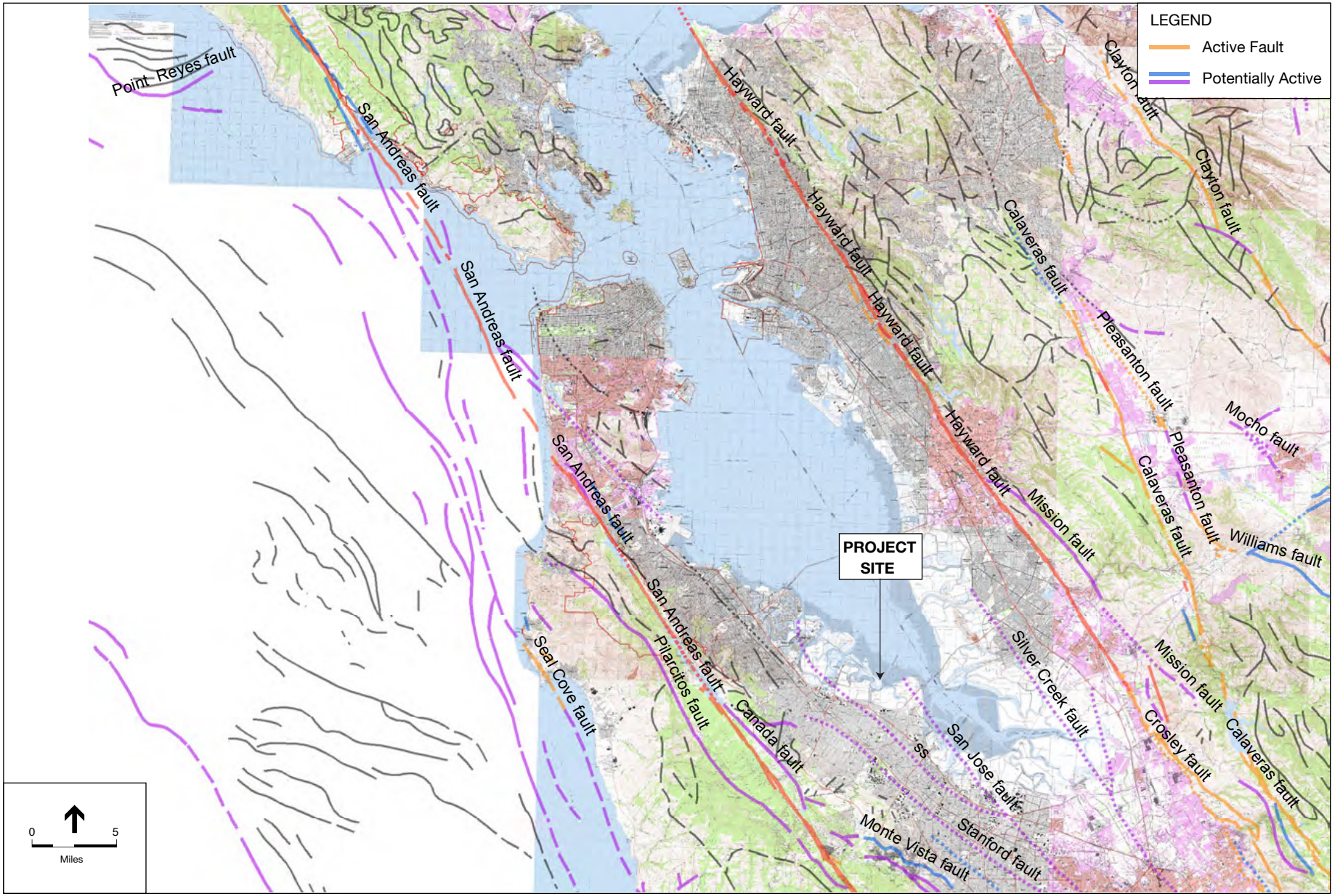
A review of the geotechnical investigation prepared for the Project site shows the soils to consist of artificial fill underlain by a soft to very stiff marine clay deposit, locally known as "Bay Mud." Approximately 4 to 10 feet of artificial fill was encountered in exploratory borings, consisting of stiff to very stiff fat clay of high plasticity with some areas of sandy lean clay and clayey sand. Some concrete, asphalt, tile and glass debris was observed within the fill at some of the boring locations. Beneath the fill materials, up to about 6 feet of Younger Bay Mud was encountered that was underlain primarily by stiff to very stiff lean/fat clay. Some relatively thin interbedded strata of medium dense to dense sands and stiff silts were also encountered at various depths and locations across the Project site. The investigation recorded the depth of groundwater from approximately 6.9 to 13 feet (Romig Engineers, 2018). Younger Bay Mud is considered to be a highly compressible material resulting in differential settlements. This differential settlement impacts proposed structure and infrastructure design as well as construction practices.

Faults and Seismicity

The Project site lies within a region of California that contains many active and potentially active faults and is considered an area of high seismic activity, as shown in **Figure 4.5-1** and described in **Table 4.5-1**.[2] The U.S. Geological Survey (USGS) along with the California Geological Survey and the Southern California Earthquake Center formed the Working Group on California Earthquake Probabilities which has evaluated the probability of one or more earthquakes of magnitude 6.7 or higher occurring in the state of California over the next 30 years beginning in 2014. Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California, reporting that there is a 72 percent probability of at least one earthquake of magnitude 6.7 or greater occurring somewhere in the San Francisco Bay region before 2043 (USGS, 2016).

Richter magnitude is a measure of the size of an earthquake as recorded by a seismograph, a standard instrument that records groundshaking at the location of the instrument. The reported Richter magnitude for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole number step representing a tenfold increase in the amplitude of the recorded seismic waves. Earthquake magnitudes are also measured by their Moment Magnitude (Mw) which is related to the physical characteristics of a fault including the rigidity of the rock, the size of fault rupture, and movement or displacement across a fault (CGS, 2002b).

[2] An active fault is defined by the state of California as a fault that has had surface displacement within Holocene time (approximately the last 11,700 years). Faults are classified by the CGS into three categories on the basis of the absolute age of their most recent movement: Holocene-active faults (moved during past 11,700 years), Pre-Holocene faults (have not moved in the past 11,700 years), and Age-undetermined faults (last fault movement has not been determined). Pre-Holocene faults may be still capable of surface rupture, but are not regulated under the Alquist-Priolo Act (CGS, 2018).



SOURCE: Jennings, 2010

Harbor View Project . 170951

Figure 4.5-1

Regional Fault Map

TABLE 4.5-1
ACTIVE FAULTS IN THE PROJECT VICINITY

Fault	Distance and Direction from Project	Recency of Movement	Fault Classification[a]	Historical Seismicity[b]	Maximum Moment Magnitude Earthquake (Mw)[c]
San Andreas	5 miles southwest	Historic (1906; 1989 ruptures)	Active	M 7.1, 1989 M 8.25, 1906 M 7.0, 1838 Many <M 6	7.9
San Gregorio	13 miles southwest	Prehistoric (Sometime prior to 1775 but after 1270 A.D.)	Active	n/a	7.3
Hayward	14 miles northeast	Historic (1868 rupture)	Active	M 6.8, 1868 Many <M 4.5	7.1
Calaveras	20 miles east	Historic (1861 1911, 1984)	Active	M 5.6–M 6.4,1861 M 6.2, 1911, 1984	6.8
Concord–Green Valley	30 miles northeast	Historic (1955)	Active	Historic active creep	6.7
Marsh Creek–Greenville	32 miles northeast	Historic (1980 rupture)	Active	M 5.6 1980	6.9
Rodgers Creek	40 miles north	Historic	Active	M 6.7, 1898 M 5.6, 5.7, 1969	7.0

[a] See footnote 2
[b] Richter magnitude (M) and year for recent and/or large events. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave.
[c] Moment Magnitude (Mw) is related to the physical size of a fault rupture and movement across a fault. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS, 2002b). The Maximum Moment Magnitude Earthquake, derived from the joint CGS/USGS Probabilistic Seismic Hazard Assessment for the State of California, 1996. (Peterson, 1996).

SOURCES: CGS, 2018; Jennings, 2010; Peterson, 1996; USGS, 2003a.

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. For this reason, earthquake intensities are also measured in terms of their observed effects at a given locality. The Modified Mercalli (MM) intensity scale in **Table 4.5-2** is commonly used to measure earthquake damage due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage.[3] The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

[3] The damage level represents the estimated overall level of damage that will occur for various MM intensity levels. The damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.

TABLE 4.5-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration (% g[a])
I	Not felt except by a very few persons under especially favorable circumstances.	< 0. 17 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.17-1.4 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.17-1.4 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	1.4–3.9g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	3.5 – 9.2 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	9.2 – 18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	18 – 34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	34 – 65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	65 – 124 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 124 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 124 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 124 g

a g (gravity) = 980 centimeters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2003; USGS, 2003b

The Northern San Andreas, Hayward and Calaveras Faults pose the greatest threat of significant damage in the Bay Area according to the USGS Working Group (USGS, 2016). These three faults exhibit strike-slip orientation and have experienced movement within the last 150 years.[4] Other principal faults capable of producing significant ground shaking in the Bay Area are listed on Table 4.5-1 and include the Concord–Green Valley, Marsh Creek–Greenville, San Gregorio and Rodgers Creek Faults.

San Andreas Fault

The San Andreas Fault Zone is a major structural feature that forms at the boundary between the North American and Pacific tectonic plates, extending from the Salton Sea in Southern California near the border with Mexico to north of Point Arena, where the fault trace extends out into the Pacific Ocean. The main trace of the San Andreas fault through the Bay Area trends northwest through the Santa Cruz Mountains and the eastern side of the San Francisco Peninsula. As the principal strike-slip boundary between the Pacific plate to the west and the North American plate to the east, the San Andreas is often a highly visible topographic feature, such as between Pacifica and San Mateo, where Crystal Springs Reservoir and San Andreas Lake clearly mark the rupture zone. Near San Francisco, the San Andreas fault trace is located immediately off-shore near Daly City and continues northwest through the Pacific Ocean approximately 6 miles due west of the Golden Gate Bridge.

In the San Francisco Bay Area, the San Andreas Fault Zone was the source of the two major seismic events in recent history that affected the San Francisco Bay region. The 1906 San Francisco earthquake was estimated at M 7.9 and resulted in approximately 290 miles of surface fault rupture, the longest of any known continental strike slip fault. Horizontal displacement along the fault approached 17 feet near the epicenter. The more recent 1989 Loma Prieta earthquake, with a magnitude of Mw 6.9, resulted in widespread damage throughout the Bay Area (ABAG, 2003). The Northern San Andres Fault has a 22 percent likelihood of one of more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

The San Gregorio Fault

The San Gregorio fault, located 19.3 miles west of the project site, is an active, structurally complex fault zone as much as 5 km wide. The fault zone is mainly located offshore, west of San Francisco Bay and Monterey Bay, with onshore locations at promontories, such as Moss Beach, Pillar Point, Pescadero Point, and Point Año Nuevo. While there is no record of historic seismicity, the most recent earthquake along the San Gregorio Fault Zone is thought to have occurred after 1270 AD to 1400 AD, but prior to the arrival of Spanish missionaries in 1775 AD (Bryant, 2005). The San Gregorio fault has a 6 percent chance of one or more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

Hayward Fault

The Hayward Fault Zone is the southern extension of a fracture zone that includes the Rodgers Creek Fault (north of San Pablo Bay), the Healdsburg fault (Sonoma County), and the Maacama fault (Mendocino County). The Hayward fault trends to the northwest within the East Bay, extending

[4] A strike-slip fault is a fault on which movement is parallel to the fault's strike or lateral expression at the surface.

from San Pablo Bay in Richmond, 60 miles south to San Jose. The Hayward fault in San Jose converges with the Calaveras fault, a similar type fault that extends north to Suisun Bay. The Hayward fault is designated by the Alquist-Priolo Earthquake Fault Zoning Act as an active fault.

Historically, the Hayward fault generated one sizable earthquake in the 1800s.[5] In 1868, a Richter magnitude 7 earthquake on the southern segment of the Hayward Fault ruptured the ground for a distance of about 30 miles. Recent analysis of geodetic data indicates surface deformation may have extended as far north as Berkeley. Lateral ground surface displacement during these events was at least 3 feet.

A characteristic feature of the Hayward fault is its well-expressed and relatively consistent fault creep. Although large earthquakes on the Hayward fault have been rare since 1868, slow fault creep has continued to occur and has caused measurable offset. Fault creep on the East Bay segment of the Hayward fault is estimated at 9 millimeters per year (mm/yr) (Peterson, et al., 1996). However, a large earthquake could occur on the Hayward fault with an estimated moment magnitude (Mw) of about Mw 7.1 (Table 4.5-2). The Hayward-Rodgers Creek Fault has a 33 percent probability of one of more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

Calaveras Fault

The Calaveras fault is a major right-lateral strike-slip fault that has been active during the last 11,000 years. The Calaveras Fault is located in the eastern San Francisco Bay region and generally trends along the eastern side of the East Bay Hills, west of San Ramon Valley, and extends into the western Diablo Range, and eventually joins the San Andreas Fault Zone south of Hollister. The northern extent of the fault zone is somewhat conjectural and could be linked with the Concord Fault.

The fault separates rocks of different ages, with older rocks west of the fault and younger sedimentary rocks to the east. The location of the main, active fault trace is defined by youthful geomorphic features (linear scarps and troughs, right-laterally deflected drainage, sag ponds) and local groundwater barriers. The Calaveras fault is designated as an Alquist-Priolo Earthquake Hazard Zone. There is a distinct change in slip rate and fault behavior north and south of the vicinity of Calaveras Reservoir. North of Calaveras Reservoir, the fault is characterized by a relatively low slip rate of 5-6 mm/yr and sparse seismicity. South of Calaveras Reservoir, the fault zone is characterized by a higher rate of surface fault creep that has been evidenced in historic times. The Calaveras Fault has a 26 percent probability of one of more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

[5] Prior to the early 1990s, it was thought that a Richter magnitude 7 earthquake occurred on the northern section of the Hayward Fault in 1836. However, a study of historical documents by the California Geological Survey concluded that the 1836 earthquake was not on the Hayward Fault (Bryant, 2000).

Seismic Hazards

Surface Fault Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults, which are referenced in Table 4.5-1.

The Project site is not within an Alquist-Priolo Fault Rupture Hazard Zone, as designated through the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project region. Therefore, the risk of ground rupture at the site is very low.

Ground Shaking

Strong ground shaking from earthquakes generated by active faults in the Bay Area is a significant hazard to the Project vicinity and could affect the Project site during the next 30 years. During the life of the Project, the proposed improvements are likely to be subjected to at least one moderate to severe earthquake that would cause strong ground shaking.

The severity of ground shaking at the site resulting from a specific earthquake would depend on the characteristics of the generating fault, distance to the energy source, the magnitude of the event, and the site-specific geologic conditions. Earthquakes on the active faults (listed in Table 4.5-1) are expected to produce a range of ground shaking intensities at the Project site. Ground shaking may affect areas hundreds of miles distant from the earthquake's epicenter. Historic earthquakes have caused strong ground shaking and damage in the San Francisco Bay Area, the most recent being the M 6.9 Loma Prieta earthquake in October 1989. The epicenter was approximately 50 miles south of the Project site, but this earthquake nevertheless caused strong ground shaking for about 20 seconds and resulted in varying degrees of structural damage throughout the Bay Area.

Liquefaction

Liquefaction is the sudden temporary loss of shear strength in saturated, loose to medium-density granular sediments subjected to ground shaking. It generally occurs when seismically-induced ground shaking causes the pressure of the water between the granules to increase to a point equal to the pressure of the soil overburden. When this occurs, the soil can move like a fluid, hence the term liquefaction. Liquefaction can cause foundation failure of buildings and other facilities due to the reduction of foundation bearing strength. Lateral spreading is related to liquefaction and is characterized by the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and 3 percent and can displace the surface by several feet up to tens of feet.

The potential for liquefaction depends on the duration and intensity of earthquake shaking, particle size distribution of the soil, density of the soil, and elevation of the groundwater. Areas at risk due to the effects of liquefaction are typified by a high groundwater table and underlying loose to medium-density granular sediments, particularly younger alluvium and artificial fill

sediments and other reclaimed areas along the margin of San Francisco Bay. A liquefaction analysis was included in the geotechnical investigation prepared for the Project site. The analysis concluded that since the proposed buildings will be supported on pile foundations extending well below the liquefiable layers, the likelihood of significant damage to the proposed buildings from liquefaction is low (Romig Engineers, 2018).

Differential Settlement

Earthquake shaking can produce compaction and densification of dry, uniformly graded, granular, and loose soil material. The amount of compaction across an area can vary due to differences in soil types, producing differential settlement. Artificial fill may also be susceptible to differential settlement. Differential settlement can affect existing and proposed foundations, slabs, and pavements. Given the geologic setting of the project area, this area could be subjected to earthquake-induced settlement.

Other Geologic Hazards

Expansive Soil

Expansive soils exhibit a "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may result over an extended period of time, usually as the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. The effects of expansive soils could damage foundations of above-ground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift.

Settlement

Settlement can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction (discussed below). Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load.

Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement. As discussed above, up to about 6 feet of relatively soft Younger Bay Mud was encountered across the Project site, and the Bay Mud is expected to be compressible under new building and fill loads. However, due to the thickness of the Bay Mud and because the fill was placed approximately 40 years ago, additional ongoing settlement within the Bay Mud from the existing fill loads is not expected to be significant (Romig Engineers, 2018).

Soil Erosion

Soil erosion is the process whereby soil materials are worn away and transported to another area either by wind or water. Rates of erosion can vary depending on the soil material and structure, soil placement, and human activity. Excessive soil erosion can eventually lead to damage of building foundations and other improvements. Erosion is most likely on sloped areas with exposed soil, especially when unnatural slopes are created by cut and fill activities. Soil erosion rates can therefore be higher during the construction phase. Typically, the soil erosion potential during construction is reduced by using modern construction practices; and once an area is graded and covered with concrete, structures, asphalt, or vegetation, the soil erosion potential is nearly eliminated.

Landslides

Landslides are dependent on the slope and geology of an area as well as the amount of rainfall, excavation, and seismic activity. A landslide or slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas Landslides can occur on slopes of 15 percent or less, however, the probability is greater on steeper slopes. The Project site is relatively flat and has a very low potential for slope failure.

4.5.2 Regulatory Setting

Federal Regulations

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 to refine the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it with several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards.

Occupational Safety and Health Administration (OSHA) Regulations

Excavation and trenching are among the most hazardous construction activities. OSHA's Excavation and Trenching standard, Title 29 of the Code of Federal Regulations (CFR), Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that

all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

In 1972, the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed (PRC Sections 2621-2630) to mitigate the effects of surface faulting on structures designed for human occupancy. This law was mainly intended to prevent the construction of buildings for human occupancy directly on the surface trace of active faults. This law only addresses the hazard of surface fault rapture and does not consider other seismic hazards.

Pursuant to the Alquist-Priolo Act, the State Geologist is required to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and issue maps accordingly. The maps are to be provided to all affected cities, counties, and California agencies to assist with planning decisions. If a project is within a designated Alquist-Priolo Earthquake Fault Zone, prior to approving any development the city or county must require a geologic investigation to prove that the proposed structures would not be constructed across active faults. As discussed above in the *Environmental Setting*, no active faults pass through the Project site. Therefore, the Alquist-Priolo Act does not apply to the Project.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC 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 regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2013 CBC is based on the 2012 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (e.g., flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, which are used to determine a

Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-05.

Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1805), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Construction General Permit

The California Construction Storm Water Permit (Construction General Permit)[6], adopted by the State Water Resources Control Board (SWRCB), regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized non-storm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or 40 Code of Federal Regulations 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the Nation;

6 *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies best management practices (BMPs) that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all permit registration documents with the SWRCB prior to the start of construction. Permit registration documents must include:

- Notice of Intent;
- Risk Assessment;
- Site Map;
- SWPPP;
- Annual Fee; and
- Signed Certification Statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

San Mateo Countywide Water Pollution Prevention Program and Municipal Regional Permit

The San Mateo Countywide Water Pollution Prevention Program has been established as the local entity responsible for implementing compliance with the federal CWA to control stormwater pollution. It is comprised of a partnership of the City/County Association of Governments (C/CAG), each incorporated city and town in the county, and the County of San Mateo, which share a common NPDES permit. The program is being conducted in compliance with the NPDES Municipal Regional Permit (MRP) issued by the SFRWQCB for municipal separate storm sewer systems (MS4s). The permit contains a comprehensive plan to reduce the discharge of pollutants to the "maximum extent practicable" and mandates that participating municipalities implement an approved stormwater management plan. The program incorporates BMPs that include construction controls (such as a model grading ordinance), legal and regulatory approaches (such as stormwater ordinances), public education and industrial outreach (to encourage the reduction of pollutants at various sources), inspection activities, wet-weather monitoring, and special studies.

The MRP governs discharges from municipal storm drains operated by 76 local government entities, including those in San Mateo County. The SFRWQCB first added provision C.3 to the stormwater permit (discussed in Section 4.8, Hydrology and Water Quality) in February 2003. The MRP was then adopted in October 2009 (Order R2-2009-0074 NPDES Permit No. CAS612008). On November 19, 2015, the SFRWQCB for the San Francisco Bay Region reissued the MRP (Order No. R2-2015-0049). The reissued permit took effect on January 1, 2016.

In accordance with these updated requirements, new development and redevelopment projects are required to incorporate treatment measures and other appropriate source control and site design

features to reduce the pollutant load in stormwater discharges and manage runoff flows. The Project would be subject to these requirements.

Local Regulations

Redwood City General Plan

The *Public Safety Element* of the Redwood City General Plan describes the following policies regarding geological resources, adopted for the purpose of avoiding or mitigating an environmental effect, and that apply to the Project. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***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, and
- ***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.

4.5.3 Project Baseline

Baseline conditions reflect the setting in the Project site as they existed at the time the Notice of Preparation for the Project was issued on January 12, 2018, as described above in the *Environmental Setting*. Information regarding site conditions is based on geotechnical investigations conducted as part of past projects within the Project vicinity.

4.5.4 Significance Criteria

Based on California Environmental Quality Act (CEQA) Guidelines Appendix G, a project would cause adverse impacts related to geology and soils if it would:

a) Expose people or structures to 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. Refer to Division of Mines and Geology Special Publication 42;

   2. Strong seismic ground shaking;

   3. Seismic-related ground failure, including liquefaction;

   4. Landslides;

b) Result in substantial soil erosion or the loss of topsoil;

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 risks to life or property; or

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems where sewers are not available for the disposal of wastewater.

f) Conflict with any applicable plan, policy, or regulation adopted by the City of Redwood City for the purpose of avoiding or mitigating an adverse geotechnical or soils impact.

Approach to Analysis

The analysis of the Project in this document is based on the conditions that are likely present as estimated from the geotechnical investigation prepared for the Project site by Romig Engineers, Inc. in December 2015, and updated in February 2018.

Topics Considered and Determined to have No Impact

The following topics are considered to have no impact to the Project based on the proposed project plan, its geographical location, and underlying conditions according to several geotechnical investigations that have occurred within the Project site. No impact discussion is provided for these topics for the following reasons:

- ***Fault Rupture*** (Criteria a.1). The faults most susceptible to earthquake rupture are active faults, which are faults that have experienced surface displacement within the last 11,700 years. There are no active faults that cross the Project site, and the nearest active fault to the Project site is the San Andreas fault, located approximately 5 miles southwest of the Project site (Romig Engineers, 2018). Therefore, the potential for fault rupture to affect the Project is very low and not discussed further.
- ***Landslides*** (Criteria a.4). The Project site does not contain slopes that are susceptible to landslides or slope failure. The relatively flat topography of the area makes the potential for landslides or slope failure at the site very low and is therefore not discussed further.
- ***Wastewater Disposal*** (Criteria e). The Project site is located within an urban area where all development would be able to tie into existing wastewater infrastructure. Therefore, the Project would not require the use of septic or other alternative disposal wastewater systems. Therefore no impact is associated with this hazard.
- ***Conflict with Redwood City Plan, Policy, or Regulation*** (Criteria f). Implementation of the Project would not present any conflict with any applicable plan, policy, or regulation related to geotechnical or soils issue areas. Project development would require site specific geotechnical evaluation and seismic design to overcome the geotechnical hazards that are present, as further discussed below, but likely within industry standards commonly employed for similar locations located near the bay shoreline.

4.5.5 Impacts of the Project

Impact GEO-1: The Project would not expose people or structures to seismic hazards such as ground shaking and seismic-related ground failure such as liquefaction, differential settlement, collapse, or lateral spreading (Criteria a.2 and a.3). (Less than Significant)

The Project site is located in a seismically active region that contains a number of active faults. The 2014 *Working Group on California Earthquake Probabilities* updated the 30-year earthquake forecast for California, reporting that there is a 72 percent probability of at least one earthquake of magnitude 6.7 or greater occurring somewhere in the San Francisco Bay region before 2043 (USGS, 2016). If not designed appropriately, a 6.7 or greater magnitude earthquake on one of these regional active faults could produce significant groundshaking at the Project causing substantial damage. However, damage can be minimized through appropriate seismic design and engineering. The City requires that all construction meet the latest standards of the California Building Code (CBC) for construction which considers proximity to potential seismic sources and the maximum anticipated groundshaking possible. The proposed construction would be in accordance with applicable City ordinances and policies and consistent with the most recent version of the CBC, which requires structural design that can accommodate ground accelerations expected from known active faults. Final design parameters for the walls, foundations, foundation slabs, and surrounding related improvements (utilities, roadways, parking lots and sidewalks) would similarly be included in the final report. Compliance with these building safety design standards would reduce potential impacts associated with ground shaking to less than significant levels.

According to mapping from the Seismic Hazard Zonation Program, the Project site is located in an area deemed highly susceptible to liquefaction hazards (CGS, 2006). A liquefaction analysis was included in the geotechnical investigation prepared for the Project site. The analysis concluded that since the proposed buildings will be supported on pile foundations extending well below the liquefiable layers, the likelihood of significant damage to the proposed buildings from liquefaction is low. In addition, differential settlement possibly could occur within the upper fill soils that could damage flatwork and other surface improvements. Since the proposed buildings are expected to be supported on pile foundations extending well below the fill, the likelihood of structural damage to the proposed buildings from differential compaction is low (Romig Engineers, 2018). Adherence to building code requirements and proven geotechnical design measures would minimize the potential for liquefaction, differential settlement, lateral spreading or collapse through foundation design, treatment of site soils and/or replacement of liquefiable soils with engineered fills.

Therefore, with implementation of the seismic design requirements into construction specification in accordance with building code requirements, as discussed above, the impacts associated with the effects associated with ground shaking and seismic-related ground failure such as liquefaction, differential settlement, collapse, or lateral spreading would be reduced to less-than-significant levels.

Mitigation: None Required

Impact GEO-2: The Project would not cause soil erosion or loss of topsoil during construction and operation of the project (Criteria b). (Less than Significant)

All construction activities associated with the Project would be required to implement BMPs, as detailed in the Storm Water Pollution Prevention Plan (SWPPP) as part of the Construction General Permit from the National Pollution Discharge Elimination System program. Although these measures are intended to prevent sedimentation from entering runoff from the site, they generally prevent soil erosion and loss of topsoil occurring at a construction site. Thus, with adherence to the required BMPs, potential construction-related erosion would be minimized to less than significant levels.

Mitigation: None Required

Impact GEO-3: The Project would not 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 (Criteria c). (Less than Significant)

The Project site is generally underlain by artificial fill materials (likely undocumented), Bay Mud and marsh deposits which are known to be generally insufficient to support substantive improvements without appropriate site preparations and/or incorporation of foundation design measures such as deep foundation systems that can be anchored in more competent materials at depth. If not engineered appropriately, improvements could be susceptible to subsidence, liquefaction, or differential settlement. The Project site is however, as described above, relatively level, and not susceptible to landslide.

The Bay Mud underlying the Project site is expected to be compressible under new building and fill loads. However, due to the thickness of the Bay Mud and because the fill was placed approximately 40 years ago, additional ongoing settlement within the Bay Mud from the existing fill loads is not expected to be significant (Romig Engineers, 2018).

In terms of liquefaction and differential settlement, as described under Impact GEO-1, the likelihood of significant damage to the proposed buildings from liquefaction is low, and additional ongoing settlement within the Bay Mud from the existing fill loads is not expected to be significant.

Lateral spreading is generally caused by liquefaction of soils on gentle slopes, resulting in predominately horizontal displacement and lateral extension of the soil mass accompanied by shear and tensile cracking of the ground surface. Lateral spreading can also occur on nearly flat-lying terrain where horizontal displacement takes place toward an unsupported slope face such as a steep embankment. The likelihood of significant lateral spreading of the soils encountered is low, as the loose sand/silt layers encountered below the Project site do not appear to be continuous across the site, the localized potentially liquefiable pockets appeared to be relatively thin, and the open faces at the nearby slough and pond are located at least 700 feet from the site (Romig Engineers, 2018).

The Project would be required to complete a final geotechnical review of the completed grading and foundation plans for conformance with the recommendations in the geotechnical investigation for liquefaction and differential settlement prior to approval of a building permit. These design recommendations would be in accordance with CBC requirements as well as any City building code amendments. Engineering recommendations included in the Project engineering and design plans would be reviewed and approved by the City. Therefore, with adherence to building code requirements as described above, the potential for unstable soils to adversely affect proposed improvements would be reduced to less than significant levels.

Mitigation: None Required

Impact GEO-4: The Project would not be located on expansive or corrosive soils creating substantial risks to life or property (Criteria d). (Less than Significant)

Expansive soils increase in volume when their moisture content becomes elevated. Structures built on expansive soils could experience foundation cracking as a result of seasonal expanding and contracting of soils over time. However, building damage due to volume changes associated with expansive soils can be reduced through proper foundation design. Replacement of native soils with engineered fill or addition of soil amendments are effective means of mitigating expansive soils.

The geotechnical investigation prepared for the Project site includes recommendations to reduce expansive soil movements. In addition, corrosion potential testing was performed on soil samples from the Project site that indicated that soils were considered to be extremely corrosive. Due to the Bay Mud and salt water environment, for specific long-term corrosion control design recommendations, the geotechnical investigation recommended retaining a corrosion engineer to evaluate the corrosion potential and protection for buried metal and concrete elements.

As a requirement of the California Building Code, the Project would be required to complete a final geotechnical review of the completed grading and foundation plans for conformance with the recommendations in the geotechnical investigation that includes site-specific recommendations for the mitigation of potentially expansive soils. Due to conformance with these recommendations, damage from geologic hazards such as expansive and corrosive soils would be minimized and reduced to levels that can be accommodated by the final design. Therefore, implementation of the standard geotechnical engineering practices and adherence to building code requirements as above would reduce potential impacts from expansive soils and other adverse soil properties to less-than-significant levels.

Mitigation: None Required

4.5.6 Cumulative Impacts

Impact GEO-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, would not result in significant cumulative impacts to geology, soils or seismicity. (Less than Significant)

The geographic scope for cumulative impacts on geology and soils is the entire Bay Area region which is considered an area of high seismic activity and susceptible to seismic events that could occur anywhere within the region. Cumulative projects considered are those in the Project vicinity that would also involve construction activity, including those in the development forecasts conducted for this EIR based on the countywide transportation model and the US 101/ SR84 (Woodside Road) Interchange Improvement Project and other approved, pending, and reasonably foreseeable future projects citywide, including several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan (see Section 4.0.4, *Cumulative Analysis*, in this chapter for detail).

The Project site is located in a seismically active area and future Project development could expose additional people and structures to potentially adverse effects associated with earthquakes including seismic ground shaking and seismic related ground failure. However, adherence to the recommendations in the geotechnical investigation prepared for the Project site, as required by the City, would ensure that the Project would be designed to minimize exposure of people to these impacts. Therefore, future development would be constructed to more current standards which could potentially provide greater protection than those of older structures within the region.

The impact of the risks associated with exposure to potential geological and soils hazards is generally localized because of the dependence on site specific conditions and would not affect the immediate vicinity surrounding the proposed project area. Development under the Project would all be constructed in accordance with the most recent version of the California Building Code seismic safety requirements and recommendations contained in the Project-specific geotechnical reports. Therefore, potential exposure to geological and soils hazards resulting from construction and operation of development of the Project would not have a cumulatively considerable contribution to a cumulative impact. No significant cumulative impact is identified.

Mitigation: None Required

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4.6 Greenhouse Gas Emissions and Energy

This section analyzes the potential effects of development of the Project from greenhouse gas (GHG) emissions on global climate change and energy. Discussed in this section are the physical and regulatory setting, including the current climate change science; the baseline for determining environmental impacts; the criteria used for determining the significance of environmental impacts; potential impacts associated with construction, operation, and maintenance resulting from implementation of the Project; and mitigation measures to reduce or avoid environmental impacts determined to be potentially significant.

While potential effects of the environment on the project are arguably not required to be analyzed or mitigated under CEQA, this section nevertheless introduces the potential effects of sea level rise - a phenomenon understood to be associated with GHG emissions - on the Project site.[1]

Public Resources Code section 21100(b) requires an EIR to discuss and consider mitigation measures for the potential energy impacts of proposed projects, with emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. This section also examines the Project's energy characteristics to determine whether the Project could result in any significant environmental impacts relating to energy during construction or operational activities.

4.6.1 Environmental Setting

Greenhouse Gases and Climate Change

Greenhouse gas (GHG) emissions are a global concern. GHG emissions cumulatively contribute to planet-wide atmospheric accumulations and consequently, there are no regional "hot spots" of elevated concentrations of carbon dioxide or any other GHG. Therefore, GHG emissions, existing or future, are not a localized phenomenon and there are no localized geographical constraints within the Project area relative to GHG emissions.

Gases that trap heat in the atmosphere are called greenhouse gases or GHGs. What GHGs have in common is that they allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect greenhouses have in raising the internal temperature, hence the name GHGs. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth's temperature; however, emissions from human activities such as fossil fuel-based electricity production and the use of motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the Earth's atmosphere and has contributed to global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation, and temperature.

[1] An appellate court specifically identified the effect of sea level rise on a project as an impact of the environment on a project and, therefore, not required to be analyzed under CEQA. (See Ballona Wetlands Land Trust v. City of Los Angeles (2009).)

Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). CO2 is the most common reference gas for climate change. CO_2 accounts for approximately 85 percent of total human activity-generated GHG emissions. Emissions of other GHGs, such as methane and nitrous oxide, have also increased due to human activities and account for almost 14 percent of total GHG emissions. Each of these gases however contributes to global warming at a different relative rate. Methane has a global warming potential 23 times that of carbon dioxide, while the global warming potential of nitrous oxide is 296 times that of the same amount of carbon monoxide. To account for these differences in warming potential of different GHGs, estimates of GHG emissions are often quantified and described in terms of carbon dioxide equivalents (CO_2e). Large emission sources are reported in million metric tons of CO_2e.[2]

Potential Effects of Climate Change

In California, climate change is contributing to an escalation of serious problems, including raging wildfires, coastal flooding and erosion, disruption of water supply, threats to agriculture, spread of insect-borne diseases, and continuing health threats from air pollution (CARB, 2017b). In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Since the 1950s, the atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. Changes in many extreme weather and climate events also have been observed since approximately 1950, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.

Surface temperature is projected to continue to rise over the 21st century under all assessed GHG emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The expectation is that the ocean will continue to warm and acidify, and global mean sea level will rise. Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks (IPCC, 2014).

Because portions of the Project site and vicinity already lie within the coastal 100-year flood hazard area, sea level rise is the primary climate change issue facing the Project, as discussed in greater detail below, under *Sea Level Rise.*

[2] The term metric ton is commonly used in the US to refer to the metric system unit, tonne, which is defined as a mass equal to 1,000 kilograms. A metric ton is approximately 1.1 short tons and approximately 2,204.6 pounds.

Existing GHG Emissions Conditions

United States and California GHG Emissions

Since 1990, United States (U.S.) GHG emissions have increased by about 2 percent. Transportation generates the largest share of GHG emissions (28.5 percent in 2016) followed closely by electricity production (28.4 percent), industrial sources (22 percent), commercial and residential sources (11 percent), and agriculture (9 percent). Land areas can act as a sink by absorbing CO_2 levels from the atmosphere. Land use and forestry contributed to an offset of 11 percent of GHG emissions in 2016 (USEPA, 2018). California's GHG emissions differ slightly by sector, with transportation generating the largest share (39 percent), followed by industrial sources (21 percent), electric power (16 percent), and commercial and residential sources (9 percent) in 2016. Recycling and waste, high global warming potential, agriculture sources represent the remaining 15 percent. California's GHG emissions profile from 2010 to 2016 is presented in **Table 4.6-1**.

TABLE 4.6-1
CALIFORNIA GREENHOUSE GAS EMISSIONS (MILLION METRIC TONS CO_2E)

Emission Inventory Category	2010	2011	2012	2013	2014	2015	2016	
Transportation	163.01	159.68	159.44	158.14	160.03	164.63	169.38	39%[a]
Electric Power	90.34	88.06	95.09	89.65	88.24	83.67	68.58	16%
Commercial and Residential	45.05	45.50	42.89	43.54	37.37	37.92	39.36	9%
Industrial	91.01	90.65	90.90	93.48	93.77	91.71	89.61	21%
Recycling and Waste	8.37	8.47	8.49	8.52	8.59	8.73	8.81	15%
High Global Warming Potential	13.64	14.74	15.74	16.82	17.82	19.05	19.78	
Agriculture	34.64	35.28	36.42	34.93	36.03	34.65	33.84	
Total Gross Emissions	**446.06**	**442.38**	**448.97**	**445.08**	**441.85**	**440.36**	**429.36**	**100%**

NOTE:
[a] Represents the percentage of GHG emissions in 2016

SOURCE: CARB, 2017a

Bay Area and San Mateo County GHG Emissions

In the San Francisco Bay Area, GHG emissions from the transportation sector represent the largest sources of the Bay Area's GHG emissions, accounting for 39.7 percent of the Bay Area's 86.6 million metric tons of CO_2e in 2011. The industrial and commercial sector was the second largest contributor with 35.7 percent of total GHG emissions. Electricity/co-generation sources account for about 14 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.7 percent. Off- road equipment and agricultural/farming sources currently account for approximately 1.5 percent and 1.5 percent of the total Bay Area GHG emissions, respectively (BAAQMD, 2015).

The 2011 BAAQMD inventory provides breakdowns for each county. San Mateo County was estimated to emit almost 7.7 million metric tons of CO2e emissions in 2011, in which 5.0 million metric tons were from the transportation sector and 1.4 million metric tons were from the industrial/commercial sector.

Redwood City GHG Emissions

Existing land uses, transportation, and related activities in Redwood City and the Project vicinity generate GHG emissions. To better understand the GHG emissions impacts associated with the policies and development envisioned under the City's General Plan, the City started by quantifying current GHG emissions. Since 2005, two inventories of the City's GHG emissions have been conducted and are discussed below.

1) ***Community Climate Action Plan Inventory.*** The City prepared and adopted (April 2013) a Community Climate Action Plan (CCAP), outlining a number of programs and strategies the City can use as a means to reduce GHG emissions. The CCAP included an inventory of GHG emissions in the city generated by various "sectors" including transportation, housing, commercial and industrial activities, and waste processing. The inventory was based on the year 2005 and was developed using the Clean Air and Climate Protection software developed by Local Governments for Sustainability (ICLEI). This inventory concluded that transportation, housing, commercial and industrial activities, and waste processing emitted 669,737 metric tons of CO_2e in the baseline year of 2005.

   This 2005 emissions inventory only accounted for traffic that was confined within Redwood City. Therefore, the inventory did not account for trips generated by Redwood City that originated or were destined for points outside of the City.

2) ***INDEX Inventory.*** As part of Redwood City's comprehensive General Plan, the City used a geographic information systems (GIS) based planning tool known as "INDEX" to estimate the community's current level of GHG emissions as well as the GHG emissions associated with the New General Plan. The INDEX model estimates CO2e emissions from the following sources:

   - Residential buildings
   - Residential related vehicle travel
   - Non-residential buildings
   - Non-residential related vehicle travel
   - Water conveyance

Table 4.6-2 shows estimated GHG emissions for Redwood City in 2008. Estimated GHG emissions from these land use and transportation sources were approximately 747,000 tons of CO_2 annually (City of Redwood City, 2010).

TABLE 4.6-2
ESTIMATED GREENHOUSE GAS EMISSIONS FOR REDWOOD CITY, 2008[a]

Sector / Emissions Source	Estimated Metric Tons / Year of CO2	Percentage of Total Emissions
Residential Buildings	134,962	18.1%
Residential Vehicle Trips	202,942	27.2%
Non-Residential Buildings	134,784	18%
Non-Residential Vehicle Trips	88,339	12%
Truck and Bus Activities*	85,580	11.5%
Industrial, Construction, Waste Management*	96,500	13%
Total (rounded)	747,000	100%

[a] Estimates are for the City's Sphere of Influence, which includes the unincorporated communities of Emerald Hills, North Fair Oaks and Selby.

* The INDEX model did not provide an estimate of GHG emissions associated with truck and bus activity, nor with activities at the Port of Redwood City. Therefore, the INDEX estimate was calibrated to included truck and bus activity emissions. The estimate does not account for Port emissions, however, the INDEX inventory captures approximately 85 percent of total emissions, and total emissions would be approximately 747,000 metric tons of CO_2/year.

SOURCE: City of Redwood City, *Stanford in Redwood City Precise Plan Draft EIR* Table 9.1, Illingworth and Rodkin, 2010

Sea Level Rise

As previously discussed, GHG emissions contribute to an increase in the average global temperature and continued global warming. Rising global temperatures are expected to cause rising global sea level. Sea level rise, or the increasing volume of water in the global ocean, is primarily caused by two distinct processes: thermal expansion of warming ocean water and melting of continental ice, including mountain glaciers and land bound polar ice on Greenland and Antarctica.

Observations of sea level rise made at the San Francisco tide gauge in the 20th century show that sea level rose nearly 0.2 meters (8 inches) during the 20th century. It is anticipated that rate of sea level rise will accelerate during the 21st century and beyond. Because sea level rise increases the starting elevation for coastal flood events, it will exacerbate coastal flood hazards that threaten the Project site.

The existing hydrologic conditions in the Project vicinity and conditions and applicable regulations that pertain to flooding and sea level rise are addressed in detail in Section 4.8, *Hydrology and Water Quality*, of this chapter, in addition to an assessment of potential impacts from predicted increases in sea level.

Energy

Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000 square-mile service area that includes the City of Redwood City (PG&E, 2018). Operating characteristics of PG&E's electricity and natural gas supply and distribution systems are provided below.

PG&E Electric Utility Operations

PG&E provides "bundled" services (i.e., electricity, transmission and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities or Customer Choice Aggregators (CCAs), as well as from distributed-generation resources, such as rooftop solar installations.

In recent years, PG&E has improved its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies. As required by California law, on July 1, 2015, PG&E filed its proposed electric distribution resources plan for approval by the California Public Utilities Commission (CPUC) (CPUC 2018a; PG&E 2015a). The plan identifies optimal locations on its electric distribution system for deployment of distributed energy resources. PG&E's proposal is designed to allow energy technologies to be interconnected with each other and integrated into the larger grid.

In 2016, PG&E generated and/or procured a total of 68,441 gigawatt hours (GWh) of electricity (PG&E, 2017). Of this total, PG&E owns approximately 7,691 megawatts (MW) of generating capacity, itemized below (see **Table 4.6-3**). The remaining electrical power is purchased from other sources within and outside of California.

TABLE 4.6-3
PG&E-OWNED ELECTRICITY GENERATING SOURCES

Source	Generating Capacity (Megawatts MW)
Nuclear (Diablo Canyon-2 reactors)	2,240
Hydroelectric	3,896
Fossil Fuel-Fired	1,400
Fuel Cell	3
Solar Photovoltaic (13 units-12 in Fresno County, 1 in Kings County)	152
Total	7,691

SOURCE: PG&E, 2017

Renewable Energy Resources

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020. This program, known as the Renewables Portfolio Standard (RPS) program, became effective in December 2011, and established three multi-year compliance periods with gradually increasing RPS targets with the last and current being 2017 through 2020 (PG&E, 2015a).

As of January 1, 2016, the amount of renewable energy that must be delivered by most load-serving entities, including PG&E, to their customers was increased from 33 percent of total annual retail sales by the end of the 2017-2020 compliance period, to 50 percent of total annual

retail sales by the end of the 2028- 2030 compliance period, and in each three-year compliance period thereafter (PG&E, 2017).

Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. As shown in **Table 4.6-4**, during 2016, 32.8 percent of PG&E's energy deliveries were from renewable energy sources, exceeding the annual RPS target of 23.3 percent (PG&E, 2017).

TABLE 4.6-4
PG&E RENEWABLE ENERGY SOURCES

Source	Percent of Total Energy Portfolio
Bioenergy	4.3
Geothermal	5.4
Wind	7.9
RPS-Eligible Hydroelectric	2.6
Solar	12.6
Total	**32.8**

SOURCE: PG&E, 2017

Peninsula Clean Energy

Peninsula Clean Energy (PCE) is a community choice energy (CCE) program in San Mateo County that delivers renewable energy through PG&E's distribution system. PCE customers can choose to opt out of traditional PG&E service and participate in electric rate classes with 50 percent renewable and 85 percent carbon-free electricity, or 100 percent renewable electricity (PCE, 2018).

Electricity Consumption

Table 4.6-5 shows electricity consumption by sector in PG&E's service area based on the latest available data from the California Energy Commission (CEC). As shown in the table, PG&E produced approximately 83 billion kilowatt-hours (kWh) in 2016, of which approximately 30.7 billion kWh were consumed by commercial building uses (CEC, 2016).

TABLE 4.6-5
ELECTRICITY CONSUMPTION IN PG&E SERVICE AREA (2016)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
All Usage Expressed in Millions of kWh (GWh)							
6,692	30,661	4,546	10,620	1,909	28,625	355	83,408

SOURCE: CEC, 2016

PG&E Natural Gas Operations

PG&E provides natural gas transportation services to "core" customers and to "non-core" customers (i.e., industrial, large commercial, and natural gas-fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas from either PG&E or non-utility third-party gas procurement service providers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E's backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to some customers outside of PG&E's service territory and to third-party natural gas storage customers. In 2016, total sales of natural gas were 195,990 million cubic feet (MMcf) (PG&E, 2017).

Natural Gas Consumption

Table 4.6-6 shows the natural gas consumption by sector in the PG&E service area according to the latest data available from CEC.

TABLE 4.6-6
NATURAL GAS CONSUMPTION IN PG&E SERVICE AREA (2016)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
All Usage Expressed in Millions of Therms						
36.1	854.6	56.3	1,797.6	69.7	1,745.5	4,559.8

SOURCE: CEC, 2016.

As shown in the table above, PG&E delivered approximately 4.6 billion therms in 2016, of which approximately 854.6 million therms were consumed by commercial building uses (CEC, 2016).

Gasoline and Diesel

Supply

California is nearly self-sufficient with regard to the gasoline and diesel fuel supply, obtaining almost all of the supply to meet local demand from the California refineries (CEC, 2014). Refineries in California often operate at or near maximum capacity because of the high demand for petroleum products. When unplanned refinery outages occur, replacement supplies must be brought in by marine tanker from refineries in the state of Washington or on the U.S. Gulf Coast. California requires that all motorists use, at a minimum, a specific blend of motor gasoline called CaRFG (California Reformulated Gasoline) as part of an overall program to reduce emissions from motor vehicles. Refineries in several other countries can also supply CaRFG. However, locating and transporting replacement motor gasoline that conforms to California's strict fuel specifications from overseas can take several weeks (EIA, 2017). As a result, unplanned outages often result in a reduction in supply that causes prices to increase, sometimes dramatically. The severity and duration of these price spikes depend on how quickly the refinery issue can be resolved and how soon supply from alternative sources can reach the affected market (EIA, 2015a).

Most petroleum supply disruptions or shortage events are resolved by the energy industry before they become significant (NASEO, 2018). An extended refinery outage occurred in 2015 due to a fire and explosion at ExxonMobil's Torrance, California, refinery in February 2015 that resulted in price spikes due to long lead times and higher prices of imported supplies. Other periods of price spikes have occurred in California, most notably in 2008, 2009, and 2012, that were similar in duration and magnitude to the 2015 supply disruption, and resulted in price increases that persisted for an average of eight weeks and took, on average, two weeks to be passed through to retail prices (EIA 2015a, 2015b). However, there are instances where the severity and scope of disasters require additional actions by government to help facilitate and coordinate response and recovery efforts (NASEO, 2018).

Consumption and Distribution

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC, 2018a). Diesel fuel is the second largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction and heavy duty military vehicles and equipment have diesel engines. Diesel is the fuel of choice because it has 12 percent more energy per gallon than gasoline and has fuel properties that prolong engine life making it ideal for heavy duty vehicle applications (CEC, 2018b). According to the State Board of Equalization (BOE), 15.5 billion gallons of gasoline and 3.0 billion gallons of diesel, including offroad diesel, was sold in 2016 (BOE 2017a, 2017b). In San Mateo County, it is estimated that 325 million gallons of gasoline and 14 million gallons of diesel were sold in 2016 (CEC, 2018c).

The CEC estimates that there were between 100-249 gasoline stations in San Mateo County in 2016 (CEC, 2018c). Commercial fleet fueling services are available in the City of Belmont located approximately 3.5 miles northwest of the Project site (CFN, 2018).

4.6.2 Regulatory Setting

Federal

Greenhouse Gas Emissions

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

In Massachusetts v. Environmental Protection Agency et al. (2007) 549 U.S. 497, California, other states, cities, and environmental organizations sued to require the U.S. Environmental Protection Agency (USEPA) to regulate GHGs as pollutants under the Clean Air Act. The U.S. Supreme Court ruled that GHGs fit within the Clean Air Act's definition of a pollutant and the USEPA had the authority to regulate GHGs.

On December 7, 2009, the USEPA Administrator signed two findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of six key GHGs—CO2, CH4, N2O, HFCs, PFCs, and SF6—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Energy

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA,42 U.S.C. §8201 et seq.) serves as the underlying authority for federal energy management goals and requirements and is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Furthermore, the NEPCA established fuel economy standards for on-road motor vehicles in the United States. The National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and revising existing standards under the NEPCA. The USDOT is authorized to assess penalties for noncompliance. In the course of more than 30 years, this regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet (NHTSA 2014, 2018).

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 (42 USC §13201 et seq.) sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; and constructing energy-efficient buildings.

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 (42 USC §17001) sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards, and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act, as described above.

State of California

Greenhouse Gas Emissions

The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California. There are currently no state regulations in California

that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

California Environmental Quality Act and Senate Bill 97

CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, affect rainfall and snowfall, and affect habitat.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted the state CEQA Guidelines amendments, as required by SB 97. These state CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

CEQA Guidelines

CEQA *Guidelines,* Section 15064.4 specifically addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The revisions also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064(h)(3).) The CEQA *Guidelines* revisions do not, however, set a numerical threshold of significance for GHG emissions.

The revisions also include the following guidance on measures to mitigate GHG emissions, when such emissions are found to be significant:

> Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;

(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;

(4) Measures that sequester greenhouse gases; and

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

(CEQA Guidelines Section 15126.4(a).)

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Arnold Schwarzenegger established Executive Order S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

As discussed below, the 2020 reduction target was codified in 2006 as Assembly Bill 32. However, the 2050 reduction target has not been codified and the California Supreme Court has ruled that CEQA lead agencies are not required to use it as a significance threshold (*Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497).

Assembly Bill 32 and the California Climate Change Scoping Plan

In 2006, the California legislature passed Assembly Bill 32 (Health and Safety Code §38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments and notes that successful implementation relies on local governments' land use planning and urban growth decisions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008 (CARB, 2009), which was re-approved by CARB on August 24, 2011, that outlines measures to meet the 2020 GHG reduction goals. To meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures for further study and possible State implementation,

such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, and forestry sectors and other sources could be achieved should the State implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill (SB) 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

The Scoping Plan is required by AB 32 to be updated at least every five years. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by CARB (CARB, 2014). The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill 32 (SB 32) as discussed below, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include: increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes (CARB, 2017b).

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It established a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 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 LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons in 2020.

Executive Order B-30-15 and Senate Bill 32

California Executive Order B-30-15 (April 29, 2015) set an "interim" statewide emission target to reduce GHG 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. Specifically, the Executive Order directed CARB to update the Scoping Plan to express this 2030 target in metric tons. On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 (SB 32) which codified the 2030 reduction target called for in Executive Order B-30-15. CARB's 2017 Scoping Plan update addresses the 2030 target, as discussed above (CARB 2017b).

Senate Bill 605

On September 21, 2014, Governor Jerry Brown signed Senate Bill 605 (SB 605), which required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add

to the list of GHGs regulated under AB 32. In developing the strategy, the CARB completed an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identified research needs to address any data gaps, identified existing and potential new control measures to reduce emissions, and prioritized the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate "Sustainable Communities Strategies" (SCS) that will achieve GHG emission reduction targets set by CARB and coordinate regional housing and transportation. The federally recognized MPO for San Mateo County is the City/County Association of Governments of San Mateo County (C/CAG).

Senate Bill 743

On September 27, 2013, Governor Jerry Brown signed SB 743 into law that would change transportation impact analysis as part of CEQA compliance. These changes included elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts in many parts of California (if not statewide). Further, parking impacts will not be considered significant impacts on the environment for select development projects within infill areas with nearby frequent transit service. According to the legislative intent contained in SB 743, these changes to current practice were necessary to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions." Overall, SB 743 supports the reduced prioritization of motor vehicle traffic in the evaluation of environmental effects. As previously stated, use of motor vehicles contribute significantly to the concentration of GHGs in the atmosphere. In November 2017, OPR released its Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR, 2017).

Bay Area Air Quality Management District 2017 Clean Air Plan

In April 2017, the BAAQMD adopted the *2017 Clean Air Plan* (BAAQMD, 2017b). The plan's primary goals are to protect public health and protect the climate. The plan includes a wide range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The *2017 Clean Air Plan* updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code. The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants as well as GHGs.

Energy

Warren-Alquist Act

The 1975 Warren-Alquist Act (Pub. Res. Code §25000 et seq.) established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a State policy to reduce wasteful, uneconomical and unnecessary uses of energy by employing a range of measures. The Act also was the driving force behind the creation of Appendix F to the CEQA Guidelines.

State of California Integrated Energy Policy

Public Resources Code Section 25301(a) requires the CEC to develop an integrated energy plan at least every two years for electricity, natural gas, and transportation fuels. 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. An overarching goal of the resulting Integrated Energy Policy Report (IEPR) is to achieve the statewide GHG reduction targets, while improving overall energy efficiency (CEC, 2018d).

Renewables Portfolio Standard (RPS)

The State's Renewables Portfolio Standard (RPS) was established in 2002 via SB 1078, which required 20 percent of the State's energy portfolio to be supplied by renewable sources such as solar, wind, hydroelectricity, geothermal, and bioenergy renewable energy by 2017. RPS goals have been accelerated over time to require the State's energy portfolio to be supplied by renewable sources in increasingly higher percentages. Since 2011, the RPS target has required all electricity retailers in the state, including investor-owned utilities including PG&E, Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) to procure 33 percent of their energy sales from renewable sources by the end of 2020 (CPUC, 2018a). SB 350, passed in 2015, directs California utilities to further increase the amount of renewable energy to be delivered to customers to 50 percent by 2050. Collectively, PG&E, SCE, and SDG&E met the 33 percent goal in 2016 and are forecasted to reach 50 percent in 2020 (CPUC, 2018b).

Energy-efficient Building Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations include requirements for non-residential building lighting, insulation, ventilation, and mechanical systems (CEC, 2015). Its provisions would be relevant to the Project's proposed structures.

As described above, the California Green Building Standards Code (CALGreen, Title 24 Part 11) is a statewide regulatory code for all buildings. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require use of low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment (see, e.g., CBSC, 2017).

San Mateo County

City/County Association of Governments

San Mateo County Energy Strategy 2012

The San Mateo County Energy Strategy 2012 was completed and adopted by the County of San Mateo Board of Supervisors in December 2008. The Strategy contains actions for San Mateo County cities and the County itself, regarding energy, water, alternative generation, and climate protection.

City of Redwood City

Redwood City General Plan

The City of Redwood City's General Plan includes policies, programs, and descriptive contents that provide the general framework and direction the City may pursue regarding its future. The General Plan *Public Safety Element* contains policies and programs relevant to climate change and the Project. The policies listed below pertain to climate change and GHG emissions and were adopted for the purpose of avoiding or mitigating an environmental effect. Policies listed below that are also considered land use policies are addressed in Section 4.9, *Land Use and Planning,* of this Draft EIR

- ***Policy PS-4.4*:** Promote urban forestation and other ecosystems that offer significant carbon mitigation potential.
- ***Policy PS-5.2*:** Strive to reduce per capita greenhouse gas emissions and total municipal greenhouse gas emissions to 15 percent below 2005 levels by 2020.
- ***Policy PS-5.3*:** Reduce greenhouse gas emissions and adapt to climate change with efforts in the following areas. Major mitigation and adaptation strategies will include:
  - *Energy*: Incentivize renewable energy installation, facilitate green technology and business, and reduce community-wide energy consumption.
  - *Land Use*: Encourage investment and development in Downtown, transit-oriented development, compact development, infill development, and a mix of uses. Discourage development on land vulnerable to flooding from sea level rise where potential impacts cannot be adequately addressed.
  - *Transportation*: Enhance bicycling and walking infrastructure, and support public transit, including Caltrain, rapid rail, streetcars, and public bus service.
  - *Buildings*: Educate developers regarding the City's Green Building Ordinance, and develop an assessment of green building techniques as a formal stage of City design review. Consider strategies to encourage energy and water conservation retrofits in existing buildings. Adaptation strategies will also include increased water efficiency in buildings.
  - *Waste*: Increase composting, recycling, and efforts to reduce waste generation, focusing especially on large commercial and industrial waste producers.

- *Ecology*: Plant trees and more vegetation, and endeavor to preserve open space. Major climate adaptation strategies will include native and drought-resistant planting and preservation of open space buffers near floodplains that may be affected by sea level rise.
- *Communication and Programs*: Develop or support energy- or climate change-themed publications and workshops, facilitate energy audits for residents, and establish partnerships to reduce greenhouse gas emissions.

Redwood City Community Climate Action Plan (CCAP) and Climate Action Plan (CAP)

The City's Community Climate Action Plan (CCAP) provides tools and encouragement for residents and local businesses to coordinate with the City to reduce GHG emissions. The CCAP was drafted in conjunction with the City's Climate Action Advisory Team and through extensive public outreach in the community.

Redwood City adopted a Climate Action Plan (CAP) in April 2013. The CAP does not contain any mechanisms by which to assess consistency of proposed development, such as what would occur with implementation of the Project. Therefore, the CAP does not represent a "Qualified GHG Reduction Strategy" pursuant to BAAQMD. The City will be carrying out the measures in its CAP toward complying with state regulations, which encourage local governments to reduce emissions in their jurisdictions to 15 percent below 2005 levels by 2020. According to Redwood City's GHG inventories and forecast, by the end of 2020 an annual reduction of nearly 62,000 metric tons of carbon dioxide emissions would need to be accomplished throughout the community in order to achieve the state recommended target reductions. The measures contained in the City's CAP are actually expected to exceed that goal by 2020, with a total annual reduction of an estimated 63,500 metric tons.

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, 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.

4.6.3 Project Baseline

Baseline conditions reflect the condition of the Project site as it existed at the time of the issuance of the Notice of Preparation, (January 12, 2018). However, for the purposes of emissions calculations, as a conservative measure, baseline emissions at the Project site are assumed to be zero.

4.6.4 Significance Criteria

Based on CEQA *Guidelines* Sections 15064.4 and 15064.4(c), as well as CEQA *Guidelines* Appendix G, a project would cause adverse impacts associated with 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 emissions of greenhouse gases.

Based on CEQA *Guidelines* Section Appendix F, a project would cause adverse impacts associated with Energy if it would:

c) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

d) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Approach to Analysis

Greenhouse Gas Emissions

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project's energy use and water consumption. BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects (BAAQMD, 2017a).

Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). The threshold for stationary sources is 10,000 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO_2e per service population per year in 2020 (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

As discussed under *4.6.3 Regulatory Setting,* above, the Redwood City CAP does not represent a "Qualified GHG Reduction Strategy" pursuant to the BAAQMD. Consequently, reliance on a qualitative assessment of a project or plans consistency with the CAP may not be adequate for impact assessment under CEQA, which requires not only an assessment of whether a project or plan may "conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases," but also whether it would "generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment."

In lieu of applying the compliance with a qualified GHG reduction strategy as a significance threshold, the use of the service population threshold (or "efficiency threshold") is what is most commonly applied throughout the Bay Area for assessment of GHG impacts relative to CEQA (i.e., emissions of 4.6 metric tons of CO2e per year per capita for projects).

In addition, the analysis considers a new interim goal of a further 40 percent reduction below 1990 levels for year 2030 that has been adopted by CARB pursuant to Senate Bill 32. Applying these further needed reductions to the service population threshold results in an operational-related greenhouse gas emissions threshold of 2.8 metric tons of CO2e per service population as sufficient to achieve the goals for year 2030 (CLE, 2016).

GHG emissions resulting from the project were estimated using CalEEMod version 2016.3.2 (model data and assumptions are provided in **Appendix C** to this Draft EIR**)**. Construction emissions were estimated for equipment and truck exhaust and construction worker vehicles. In regard to operations, vehicle trips assumed default trip lengths for urban land uses, which are embedded in CalEEMod and have been vetted by the BAAQMD. The model makes adjustments for continued implementation of Pavley vehicle standards. Area and indirect sources associated with project operations would primarily result from electrical usage, water and wastewater treatment and transport (the energy used to pump water and wastewater to and from the project) and solid waste generation. GHG emissions from electrical usage are generated when energy consumed on the site is generated by non-renewable sources. GHG emissions from water and wastewater transport are also indirect emissions resulting from the energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. Solid waste emissions are generated when the increased waste generated by the project are taken to a landfill to decompose.

Project features and resulting GHG emissions were analyzed in context of the goals of AB 32 and the *2017 Scoping Plan Update,* SB 32*,* and the BAAQMD's *2017 Clean Air Plan* to determine whether the project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Energy

Consistent with Public Resources Code Section 21100(b)(3), this impact analysis evaluates the potential for the Project to result in a substantial increase in energy demand and/or wasteful use of energy during Project construction and operation. The impact analysis is informed by Appendix F of the CEQA Guidelines. Energy impacts are assessed not by comparison to a quantitative

threshold but by a qualitative assessment of whether or not applicable energy demand reduction strategies are implemented by the Project to reduce wasteful and inefficient use of energy.

Cumulative

Both BAAQMD and California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. (BAAQMD, 2017a and CAPCOA, 2008). Therefore, the evaluation of GHG impacts evaluates whether the project would make a considerable contribution to cumulative climate change effects.

4.6.5 Impacts of the Project

Impact GHG-1: The Project would produce greenhouse gas emissions that exceed 1,100 metric tons of CO_{2e} per year, but would not exceed 2020 or 2030 CO_2e per service population emission thresholds (Criterion a). (Less than Significant)

Construction and operation of the Project would generate GHG emissions. The use of fossil fuels in construction equipment used to develop the Project would generate GHGs such as carbon dioxide, methane and nitrous oxide. Once operational, the Project would generate GHG emissions primarily from motor vehicle use, gas, electricity and water use. The Harbor View project would result in a net increase in vegetated areas than currently exist on its approximately 27.10-acre project site.

Demolition and Construction Emissions

The Project's initial demolition and construction activities would involve demolition of approximately 67,000 square feet of building area, the removal of approximately 15,000 cubic yards of pavement, and construction of approximately 1.18 million square feet of commercial office use, including 35,000 square feet of amenities space, which would require the use of off-road construction equipment, vendor trucks, and worker vehicles, all of which would emit GHGs. This phase of the Project is anticipated to begin in June 2019 and to conclude in May 2021, lasting approximately 24 months. On-site sources of GHG emissions include off-road equipment exhaust and off-site sources include on-road vehicles (e.g., haul trucks, vendor trucks, and worker vehicles). **Table 4.6-7** presents construction emissions for the Project in 2019, 2020, and 2021 from on-site and off-site emission sources. CalEEMod outputs can be found in Appendix C to this Draft EIR.

While the BAAQMD does not have an adopted threshold for construction-related GHG emissions, BAAQMD recommends quantifying and disclosing GHG emissions that would occur during construction, and making a determination on the significance of these construction-generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals.

TABLE 4.6-7
ESTIMATED ANNUAL CONSTRUCTION GREENHOUSE GAS EMISSIONS

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2019	786.39	0.17	0.00	790.52
2020	3,144.54	0.42	0.00	3,155.05
2021	544.88	0.14	0.00	548.33
Total	**4,475.80**	**0.72**	**0.00**	**4,493.90**
Amortized Annual Emissions over 30 Years				149.80

NOTES:
Columns may not total precisely due to rounding.
CH_4 = methane; CO_2 = carbon dioxide; CO_2E = carbon dioxide equivalent; N_2O = nitrous oxide

SOURCE: ESA 2018 (Appendix C)

As shown in Table 4.6-7, an estimated total of approximately **4,493 metric tons (MT) of CO_2e** would be emitted from construction activities over the 24 month Project construction period. The GHG emissions from construction activities would generally not significantly contribute to long-term cumulative GHG emissions impacts, as they would be one-time, short-term emissions. Construction emissions can be converted to average annual emissions by amortizing them over the service life of a building. For buildings in general, it is reasonable to assume a 30 to 40-year timeframe as this is a typical interval before a new building requires the first major renovation (IEA, 2008). Thus, the total construction GHG emissions were calculated, conservatively amortized over 30 years, and added to the total operational emissions below.

The analysis of construction emissions considers improvements in construction equipment exhaust emissions through manufacturer requirements and turnover. The Project would incorporate dust control measures recommended by BAAQMD (Mitigation Measures AIR-1A and AIR-1B, see Section 4.2 *Air Quality,* in this Draft EIR), which also include some measures to reduce construction exhaust emissions. Equipment used during construction would be subject to the requirements of BAAQMD Rules and Regulations, specifically, BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements) with respect to portable equipment unless exempt under Rule 2-1-105 (Exemption, Registered Statewide Portable Equipment).

Long-Term Operational GHG Emissions

The Project would also generate GHG emissions during the operational phase. These would include direct emissions from motor vehicle trips and natural gas combustion for heating in buildings; indirect emissions from electricity use in buildings (grid electricity), water conveyance and waste water conveyance and treatment; and emissions from area sources.

Table 4.6-8 summarizes the operational GHG inventory for the Project. The table includes those emission sources that are included in the BAAQMD Guidelines, such as area sources, transportation, operational electricity consumption, solid waste disposal, water usage, and wastewater generation.

TABLE 4.6-8
GHG EMISSIONS INVENTORY FOR THE PROJECT

Emission Source	Total Emissions (MT/Year)			
	CO_2	CH_4	N_2O	Total CO_2e
Area Sources	0.09	<0.01	0.00	0.10
Energy Sources	4,086.11	0.31	0.08	4,118.33
Mobile Sources	5,570.95	0.20	0.00	5,576.01
Solid Waste	222.72	13.16	0.00	551.77
Water and Wastewater	114.57	0.13	0.08	142.29
Total	**9,994.43**	**13.81**	**0.16**	**10,388.50**
Amortized Construction Emissions over 30 Years				149.80
Operation including Construction Total				**10,538.30**
Project level Significance Threshold				1,100
Exceeds Significance Threshold?				**Yes**
Service Population (4,579 employees)				4,579
Total Project GHG Emissions by Service Population				**2.3**
Project level 2020 Significance Threshold				4.6
Exceeds 2020 Significance Threshold?				**No**
Project level 2030 Significance Threshold				2.8
Exceeds 2030 Significance Threshold?				**No**

NOTE: Columns may not total precisely due to rounding.

SOURCE: ESA, 2018 (Appendix C)

The emissions inventory in Table 4.6-8 is a conservative estimate as it does not factor in any reductions from design features specific to the Project. The estimated emissions also do not include any reductions from the implementation of City policies and ordinances such as the Green Building Ordinance, but do include reductions from regulatory requirements such as implementation of Pavley vehicle emission standards, and other reduction measures from the AB 32 Scoping Plan.

Table 4.6-8 shows the Total Annual GHG emissions generated by the Project, excluding emissions from construction associated with that development (as required by the BAAQMD CEQA Guidelines), is approximately **10,538.3 MT CO_2e per year**, which is above the 1,100 MT CO2e per year screening threshold. Considering the estimated service population of approximately 4,579 employees associated with the Project (which includes commercial uses only), the Project would result in approximately **2.3 MT CO_2e per service population annually**. Therefore, the Project would have a less than significant impact because it would not exceed both significance thresholds; while it would produce total emissions that exceed the 1,100 MT of CO_2e, the annual emissions, per service population would be below the applicable threshold of 4.6 MT of CO_2e per service population annually for the year 2020.

For year 2030, a new interim goal of a further 40 percent reduction below 1990 levels has been adopted by CARB pursuant to Senate Bill 32. Applying these further needed reductions to the service population threshold results in an operational-related greenhouse gas emissions threshold of 2.8 metric tons of CO2e per service population as sufficient to achieve the goals for year 2030 (CLE, 2016). As currently proposed, the Project would result in approximately 2.3 MT CO2e per

service population annually, which would not exceed the year 2030 threshold. Therefore, the Project would not have a significant effect on the environment related to greenhouse gas emissions with respect to the GHG reduction goals for year 2030.

Mitigation: None Required

Impact GHG-2: The Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions (Criterion b). (Less than Significant)

GHG emissions generated by the Project would be less than the BAAQMD's project level "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year for the year 2020 (see Impact GHG-1, above). BAAQMD thresholds were crafted in a manner that defined a project's (or plan's) emissions as significant if the resulting development would emit GHG emissions above the level beyond which achievement of AB 32 goals may be inhibited. The efficiency threshold was developed for land uses that would involve population and employment growth (service population) under forecast conditions, and factored the emission rates that would accommodate growth while still allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020) (BAAQMD, 2009).

The *2017 Scoping Plan Update* addresses the 2030 target established by SB 32, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. Applying these further needed reductions to the service population threshold results in an operational-related greenhouse gas emissions threshold of 2.8 metric tons of CO2e per service population as sufficient to achieve the goals for year 2030 (CLE, 2016). GHG emissions generated by the Project would be less than the "efficiency threshold" of 2.8 metric tons of CO_2e per service population per year for the year 2030 (see Impact GHG-1, above).

Given the bases upon which the efficiency thresholds were developed, which factored in GHG emissions needed to help achieve AB 32 and SB 32 goals and considered population and employment growth, the Project would not be considered to impair attainment of GHG reduction goals established pursuant to AB 32 in the *Climate Change Scoping Plan*.

Further, the Project would be required to comply with all applicable policies in the City's General Plan as well as the Green Building Ordinance. The Project sponsor has also indicated that the Project will be designed to a LEED silver standard and will meet all new state energy requirements for both buildings and site design components. The Project sponsor has also drafted a project-specific Transportation Demand Management (TDM) plan that includes several potential strategies to reduce vehicle trips that are consistent with the measures outlined in County's TDM Guidelines.[3] Some of the Harbor View TDM strategies include local shuttle and commute bus services, bicycle storage facilities, employee showers and changing rooms.

[3] While the draft TDM plan is developed by the Project sponsor, is not factored in this Draft EIR as a part of the Project for the purpose of reducing vehicle trips prior to the identification of Project impacts; it is drafted pursuant

As discussed in Section 4.2, *Air Quality,* in this chapter, the Project would be consistent with the control measures to reduce emissions of GHGs applicable to the Project that are outlined in the BAAQMD's *2017 Clean Air Plan (*see the discussion under Impact AIR-3 and Table 4.2-4).

Overall, development of the Project would not conflict with any applicable plans, policies or regulations adopted with the intent to reduce GHG emissions. The impact would be less than significant.

Mitigation: None Required

Impact GHG-3: The Project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources (Criterion c). (Less than Significant)

Construction Energy Use

The analysis in this section utilizes the GHG emissions estimates identified in **Appendix C**, to estimate gasoline and diesel fuel consumption volumes for construction-related equipment and vehicles. The fuel use calculations are also provided in **Appendix C**, as *Harbor View Project Fuel Use*, and are summarized below.

Construction of the Project would result in fuel consumption from the use of construction tools and equipment, haul truck trips, vendor truck trips, and vehicle trips generated from construction workers traveling to and from the Project site. Project construction is expected to consume a total of approximately **367,770 gallons of diesel** fuel from construction equipment, vendor truck trips, and haul truck trips. Approximately **82,105 gallons of gasoline** from construction worker vehicle trips would also be consumed during Project construction. For reference, approximately 325 million gallons of gasoline and 14 million gallons of diesel were sold in 2016 (CEC, 2018c).

Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel for heavy-duty equipment would not be a typical condition of the Project. In addition, there are no unusual Project characteristics that would cause the use of construction equipment that would be less energy efficient compared with the other similar construction projects. As a result, construction-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with the energy use for other construction projects in the region. This impact would be less than significant.

Operational Energy Use

Once operational, the Project would involve energy demand for electricity, natural gas, as well as gasoline for motor vehicle trips attributed to the Project. The overall energy usage at the Project

to C/CAG requirements and identified as a secondary mitigation measure to reduce intersection operations, as described in detail in Section 4.14, *Transportation and Traffic* of this Draft EIR.

site would increase with the proposed 1,179,747 square feet of commercial office use compared to existing uses on the Project site.

Operation – Building

Energy service to the Project will be provided by PG&E, which currently serves the area. The project sponsor estimates the total energy demand for the Project building to be **109,096 MWhr per year**, which includes energy use from the office buildings, amenities building, garages, electric vehicle charging, and site and parking lot lighting. For reference, the Project's annual electricity demand represents approximately 0.36 percent of the commercial building energy consumed in the PG&E service area in 2016 (CEC, 2016). Electricity associated with Project water consumption was also estimated to be 23,966 MWh per year, which is based on the CalEEMod energy intensity of 0.35 kWhr per gallon for supply, distribution, and treatment of water and the Project's annual water consumption based on the Utilities Feasibility Study prepared for the Project. Additionally, Project natural gas consumption was estimated in CalEEMod to be approximately 21,955,100 kBTUs or approximately 219, 602 therms per year. The natural gas demand would represent approximately 0.03 percent of the natural gas use from commercial buildings in PG&E's service area in 2016 (CEC, 2016).

The Project would be subject to all regulations and General Plan policies, and more stringent fuel efficiency regulations and Title 24 standards in the future would continue to reduce the energy demand from the Project. The Redwood City General Plan contains several policies that relate to energy conservation and would apply to development such as the Project. These policies promote efficient management and use of energy resources and encourage the use of greener, alternative energy sources. The Project sponsor has also indicated that the Project will be designed to a LEED silver standard, which would ensure that operation of the Project building would not result in inefficient, wasteful, or unnecessary energy use.

Operation – Mobile

Project operation would also involve energy demand from gasoline fuel used by commuting workers to and from the Project site. Using the total CalEEMod mobile emissions rates (see Appendix C) during operations yield a conservative estimate of **465,389 gallons of gasoline** required annually during Project operation. The gasoline consumption by Project workers during operation would represent approximately 0.14 percent of San Mateo County's gasoline sales in 2016 (CEC, 2018c). In addition, several Redwood City General Plan policies address ways to reduce vehicle trips and vehicle miles traveled thereby reducing associated energy use. As discussed under Impact GHG-2, the Project includes a project-specific TDM plan that includes strategies aimed at reducing employee trips. Therefore, the energy demand from the operation of the Project would not result in wasteful, inefficient and unnecessary use of energy. This impact would be less than significant.

Mitigation: None Required

Impact GHG-4: The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Criterion d). (Less than Significant)

The Project would be required to comply with the Redwood City Green Building Ordinance and current Title 24 standards which would promote energy efficiency. The Project would also be consistent with the CEC's IEPR primary goal of achieving the statewide GHG reduction targets (see Impact GHG-2), while improving overall energy efficiency. The Project sponsor has indicated that the Project will be designed to a LEED silver standard; LEED buildings consume 25 percent less energy and 11 percent less water than traditional building construction (USGBC, 2018). The Project would also not conflict with the National Energy Policy Act of 2005, as it would support the construction of energy efficient buildings. The San Mateo County Energy Strategy emphasizes water conservation and reuse as an energy conservation strategy. The Project would support this strategy by using recycled water for approximately 82 percent of its total water usage.

In terms of light-duty vehicle energy usage, as described above, the NHTSA required manufacturers of light-duty vehicles to meet an estimated combined passenger car and light truck average fuel economy level of 34.1 miles per gallon (mpg) by model year 2016. In the course of more than 30 years, the NECPA regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet, and has also protected against inefficient, wasteful, and unnecessary use of energy. Regardless of the uncertainty for fleet-wide emissions past 2021, the projected fleet-wide mpg for light-duty vehicles is expected to reach 41.7 mpg by 2020 (USEPA, 2012). Vehicles used by Project construction workers and commuters during operation would already incorporate these standards; therefore, the Project would not impede the efficient use of fuel for light-duty vehicles.

Since the Project would be designed to a LEED silver standard, and would comply with fuel and energy efficiency regulations, it would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

Mitigation: None Required

4.6.6 Cumulative Impacts

Greenhouse Gas Emissions

Impact GHG-1.CU: The Project, combined with cumulative development, would result in cumulative impacts regarding GHG emissions and climate change, the but Project's contribution would not be cumulatively considerable (Criteria a and b). (Less than Significant)

Climate change is a global problem. GHGs are global pollutants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Therefore, the effects of GHGs are also experienced globally. The atmospheric

concentration of GHGs determines the intensity of climate change, with current levels already leading to increases in global temperatures, sea level rise, severe weather, and other environmental impacts. The continued increase in atmospheric GHG concentrations will only worsen the severity and intensity of climate change, leading to irrevocable environmental changes. Therefore, from the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative. No single project could generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts.

As discussed under Impact GHG-1, GHG emissions from the construction and development of the Project would be less than significant. The Project's GHG emissions would be less than the "efficiency threshold" of 2.8 metric tons of CO_2e per service population per year for the year 2030. The 2030 target was established by SB 32, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. Therefore, Project contribution to the global cumulative impact would be less than significant.

Mitigation: None Required

Energy

Impact GHG-2.CU: The Project, combined with cumulative development citywide, would not conflict with adopted energy conservation plans, violate energy standards, or result in wasteful, inefficient and unnecessary use of energy, such that a cumulative impact would occur (Criteria c and d). (Less than Significant)

The geographic context for potential cumulative impacts related to electricity and natural gas is within PG&E's service area and for equipment and vehicle fuel use is within the Project's construction workers' commute radius (assumed to be approximately 10.8 miles, as identified in Appendix C to this document), since these are the areas within which energy resources would be demanded and supplied for the Project.

As described under Impact GHG-3, the Project's electricity and natural gas use would represent a small fraction of the electricity and natural gas usage attributed to commercial buildings in the PG&E service area. Therefore, the Project's less than significant impact relating to the wasteful, inefficient and unnecessary use of electricity or natural gas would not be cumulatively considerable.

The Project would use fuel resources during construction and operation; therefore, it could contribute to potential cumulative impacts during construction and operation, as well. The Project would result in an increase in fuel consumption during construction and operation that would result from additional construction worker and operational commuter vehicle trips. However, as described under Impact GHG-3, this increase in fuel consumption, when compared to County gasoline and diesel sales, would not result in a significant impact and would not be cumulatively considerable.

Regarding the efficiency of fuel use, there is no existing significant adverse condition (such as a shortage) that would be worsened or intensified by the Project. Past, present, and reasonably foreseeable future projects within approximately 10.8 miles of the Project site could require gasoline or diesel fuel, but these fuel demands would not combine with the fuel demands of the Project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future fuel shortage, higher prices at the pump would curtail non-essential trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. In addition, the Project site is within 1 mile of the Redwood City Caltrain station, which would allow construction workers flexibility in their chosen modes of travel. During Project operation, a TDM program would be implemented which includes strategies aimed at reducing employee trips, and encourages the use of alternative transportation options. Under these conditions, the Project's less than significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would not be cumulatively considerable.

Additionally, as described under Impact GHG-4, the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, nor would it cause a significant environmental effect due to compliance with fuel and energy efficiency regulations, and a LEED silver building design. Therefore, the Project's less than significant impact relating to conflict with or obstruction of a State or local plan for renewable energy or energy efficiency would not be cumulatively considerable.

Mitigation: None Required

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4.7 Hazards and Hazardous Materials

This section presents hazardous materials and hazards conditions in the Project vicinity and evaluates the potential for implementation of the Project to result in significant impacts related to exposing people or structures to unfavorable geologic hazards, soils, and/or seismic conditions that may affect health and safety. Potential impacts are discussed and evaluated, and appropriate mitigation measures are identified where necessary. The analysis of the Project is based on a site-specific Phase I Site Assessment (RPS, 2018).

CEQA requires the analysis of potential adverse effects of a project on the environment. While potential effects of the environment on the project are arguably not required to be analyzed or mitigated under CEQA, this section nevertheless analyzes potential effects of past hazardous materials releases, airport safety and wildfires on Project implementation as set forth in CEQA *Guidelines*, Appendix G, Significance Criteria, and in order to provide information to the public and decision-makers. As such, the potential adverse effect of existing hazardous materials sites on Project sensitive uses and receptors is analyzed below.

4.7.1 Setting

Definitions

Materials and waste are generally considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability); corrode other materials (corrosivity), or react violently, or explode or generate vapors when mixed with water (reactivity). The term “hazardous material” is defined in the State Health and Safety Code (Chapter 6.95, Section 25501[o]) as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.

A hazardous waste, for the purpose of this EIR, is any hazardous material that is abandoned, discarded, or recycled, as defined in the State Health and Safety Code (Chapter 6.95, Section 25125). The transportation, use, and disposal of hazardous materials, as well as the potential releases of hazardous materials to the environment, are closely regulated through many state and federal laws.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent on several factors, the primary factor being the potential pathway for human exposure. Exposure pathways include external exposure, inhalation, and ingestion of contaminated soil, air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health effects, from short term acute symptoms to long-term chronic effects. Potential health effects from exposure can be evaluated in a health risk assessment. The principle elements of exposure assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site;

- Identification of potential exposure pathways;
- Identification of potential exposure scenarios;
- Calculation of representative chemical concentrations; and
- Estimation of potential chemical uptake.

Hazardous Building Materials

Demolition, development and redevelopment projects often involve the need to demolish existing older structures. Many older buildings contain building materials that consist of hazardous materials, which can be hazardous to people and the environment once disturbed. These materials include lead-based paint, asbestos-containing materials (ACM), and polychlorinated biphenyls (PCBs).

Lead and Lead-Based Paint

Prior to the U.S. Environmental Protection Agency (EPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Through such disturbances as sanding and scraping activities, or renovation work, or gradual wear and tear, old peeling paint, or paint dust particulates have been found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects, especially in children.

Asbestos

Asbestos is a naturally-occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the EPA in the 1970s. ACM were commonly used for insulation of heating ducts as well as ceiling and floor tiles, linoleum, and cement shingles to name a few typical types of materials. Similar to lead-based paint, ACM contained within the building materials present no significant health risk because there is no exposure pathway. However, once these tiny fibers are disturbed, they can become airborne and become a respiratory hazard. The fibers are very small and cannot be seen with the naked eye. Once they are inhaled, they can become lodged into the lung potentially causing lung disease or other pulmonary complications.

State laws and regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local governmental agencies prior to beginning renovation or demolition that could disturb asbestos. The San Francisco Bay Area Air Quality Management District (BAAQMD) is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work. (See *Regulatory Setting,* below, for future regulations regarding asbestos removal.)

Polychlorinated Biphenyls (PCBs)

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the U.S. EPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit.

Mercury

Spent fluorescent light tubes, thermostats, and other electrical equipment contain heavy metals such as mercury that, if disposed of in landfills, can leach into soil or groundwater. Lighting tubes typically contain concentrations of mercury that may exceed regulatory thresholds for hazardous waste and, as such, must be managed in accordance with hazardous waste regulations. Elemental mercury waste is considered hazardous. Mercury can also be present in traps in the plumbing of older buildings in which mercury-containing equipment has been used.

Regional and Local Setting

The Project vicinity is characterized by a mix of open space, commercial, civic, and light and heavy industrial uses. Predominate landside uses include building-related commercial and industrial uses, outdoor storage, marine and aquatic uses along the waterfront, and public uses that include the County correctional facilities and a City police station. Surrounding uses include heavier industrial, rail and port uses, commercial office and research and development facilities. Historical uses in and around the Project vicinity involved commercial shipping and ship building activities, tanneries, and the City's sewage treatment plant.

The Project site has a history of undocumented fill, warehouse/manufacturing facilities, and material storage. Historical uses on the Project site also include Malibu Castle and Grand Prix entertainment complex (included an arcade, batting cages, three miniature golf courses, bumper boat pool, and go-kart racing area), Graniterock retail space and warehouse, and T&H Lumber retail space and warehouse, and a fueling station. Various structures and concrete pads are present on the Project site, which is currently vacant and has no tenants with the exception of the general contractor Level 10.

A Phase I Environmental Site Assessment was completed for the Project site that consists of eight contiguous properties, owned by Harbor View Property LLC, located at 320, 330, 340, 350, and 410 Blomquist Street, 19 Seaport Boulevard, 11, 15, 17, 19, 21, and 30 Stein Am Rhein Court (RPS, 2018). Potential contaminants of concern identified in the RPS report are identified below.

Contaminants of Potential Concern On Site

Asbestos

The Project site is enrolled in a Voluntary Cleanup Program (VCP) under the oversight of the California Department of Toxic Substances Control (DTSC) for ACM present in soils beneath the Project site that have been encountered during previous investigation and remediation activities,

at concentrations that would likely constitute a California-hazardous waste if excavated and removed (DTSC, 2018). The ACM is present intermittently site-wide; however, it is primarily encountered in the eastern portions of the Project site where the former PABCO facility was located. The former PABCO facility manufactured linoleum, paints, asbestos-based insulation, and asbestos cement shingle siding and operated throughout the 1940s and the 1950s.

RPS has prepared and submitted a Draft Removal Action Workplan (RAW) to document asbestos investigation work done at the Project site for review and approval by the DTSC. The Draft RAW presents the proposed remedy to manage ACM soils when encountered during development, which will entail excavation, segregation, consolidation, and capping the asbestos soils with either hardscape or a certain thickness of clean fill and/or a marker fabric. The final RAW will contain a Site Management Plan (SMP), Health and Safety Plan stamped by a Certified Industrial Hygienist, a voluntary Dust Control Plan/Asbestos Dust Mitigation Plan/Asbestos Air Monitoring Plan, a Waste Transportation Plan, and Construction Quality Assurance Plan as appendices.

Underground Storage Tanks (UST)

Five historical USTs were present at 330 Blomquist Street, one historical UST was present at 340 Blomquist Street, three USTs were removed from the 11, 15, 17, 19, and 21 Stein Am Rhein parcel, and two USTs were removed from the 19 Seaport parcel. Although these USTs have all received regulatory closure, it is still possible for residual impacts to be encountered during development (SWRCB, 2018a).

Two leaking underground storage tank (LUST) cases remain open at the Project site pertaining to residual fuel-related impacts in soil, groundwater, and soil vapor associated with a former 6,000-gallon gasoline UST and product piping at 320 Blomquist Street, and former 2,000-gallon and 4,000-gallon gasoline USTs at 410 Blomquist Street. For the 320 Blomquist Street tank, a Remedial Action Completion Report and Request for Closure has been submitted and the remaining portion of the dispenser line will be removed subject to the SMP. For the 410 Blomquist Street tanks, an Off-Site Investigation Report and Request for Closure was submitted and a Well Destruction Work Plan was approved. In February and March 2018, the ten wells were destroyed under permit from the San Mateo County Environmental Health Department (SMCEH) Groundwater Protection Program (GPP). These activities will be documented in a Well Destruction Report once the associated generated wastes are removed from the Project site.

Volatile Organic Compounds (VOCs) and Methane

The presence of VOCs in the subsurface from on-site (open and closed UST cases) and off-site (former Willard Products site adjacent to the west) impacts, may pose a potential vapor intrusion concern for future buildings. In addition, a subsurface investigation has shown there to be methane gas concentrations in soil gas in the northern portion of the Project site that may pose an explosion hazard. RPS is currently evaluating the potential for vapor intrusion and methane gas concerns under the proposed future buildings.

Lead

Elevated concentrations of total lead have been identified sporadically across the Project site above human health direct contact environmental screening levels (ESLs) established by the SFBRWQCB. The 95 percent upper confidence level of the arithmetic mean (95 UCL) of the detected lead concentrations resulted in a Site-wide average of 107.3 mg/kg, below the commercial DTSC modified Regional Screening Level (RSL) of 320 mg/kg.

Total Petroleum Hydrocarbons (TPH)

Residual contamination in soil and groundwater by TPH as diesel (TPH-d), oily product, ethylbenzene, and xylenes are present adjacent to the east of the 19 Seaport parcel due to a Union Pacific Rail Road (UPRR) locomotive fuel tank release, which occurred in 2011 adjacent to the Project site, as described in more detail below. In response to the most recent soil and groundwater investigation conducted for the release by UPRR's consultant, SMCEH is requiring further investigation to the south, west and north of their location, which includes areas of the Project, indicating that impacts from the diesel release in 2011 may extend onto the Project site.

Metals and Organochlorine Pesticides (OCPs)

Fill of unknown origin containing metals and OCPs are present in soil at depth at concentrations that may constitute California-hazardous waste if excavated and removed. Where present, these materials generally exist within the shallow fill soils and do not appear to extend into the native Bay Mud. Some stockpiled soils of unknown origin are located to the south of the railroad tracks on the 320 Blomquist Street property, and appear to be used as a railcar bumper.

Other Contaminants

The Site is subject to an SMP, which was developed to manage known and unknown conditions described above, including possible residual impacts from closed on-site UST cases, and surficial asphaltic tar-like material that may exist at depth. The SMP includes provisions for hardscaped areas, requirements for clean fill thickness, and a marker fabric such that a land use covenant (LUC) may be implemented at the Project site. A LUC will likely need to be recorded specifying that the RAW be implemented and that the SMP be followed before, during and after redevelopment.

In addition, a release of diesel from the Union Pacific Railroad (UPRR) occurred on December 2, 2011 (SWRCB, 2018b). The UPRR locomotive released an estimated 300 gallons of diesel from a locomotive fuel tank due to a puncture on the bottom of the tank. The locomotive reportedly ran over debris on the track which caused the release. The locomotive was traveling north adjacent to the Seaport Boulevard frontage road and fuel was released along the track and UPRR right-of-way until the train stopped adjacent to the Lyngso Garden Materials business located at 19 Seaport Boulevard. Fuel reportedly pooled on the eastern side of the track and flowed across the weathered asphaltic concrete pavement of Seaport Boulevard and into the unpaved right-of-way on the east side of the road. In addition, soil staining from the release was observed at three additional locations within the UPRR right-of-way between Stein Am Rhein Court and Veterans Boulevard. The investigation and cleanup of the spill is currently under the oversight of the GPP.

4.7.2 Regulatory Setting

Federal and State

The primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, U.S. Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the U.S. Department of Transportation (DOT). Federal laws, regulations, and responsible agencies are summarized in **Table 4.7-1**.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the state or local agency section.

TABLE 4.7-1
FEDERAL LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT

Classification	Law or Responsible Federal Agency	Description
Hazardous Materials Management	Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA)	Imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.
Hazardous Waste Handling	Resource Conservation and Recovery Act of 1976 (RCRA)	Under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from “cradle to grave.”
	Hazardous and Solid Waste Act	Amended RCRA in 1984, affirming and extending the “cradle to grave” system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.
Hazardous Materials Transportation	U.S. Department of Transportation (DOT)	Has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CRF).
	U.S. Postal Service (USPS)	USPS regulations govern the transportation of hazardous materials shipped by mail.
Occupational Safety	Occupational Safety and Health Act of 1970	Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 Code of Federal Regulations [CFR]).
Structural and Building Components (Lead-based paint, PCBs, and asbestos)	Toxic Substances Control Act (TSCA)	Regulates the use and management of PCBs in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.
	U.S. EPA	The EPA monitors and regulates hazardous materials used structural and building components and effects on human health.

Regional

San Mateo County Environmental Health Division

The San Mateo County Environmental Health Division is responsible for providing a safe and healthful environment in the county's 20 cities and unincorporated areas through education, monitoring and enforcement of a variety of regulatory programs as well as ongoing services to the community. Part of the Division includes the Hazardous Materials Program (HMP) which is the Certified Unified Program Agency (CUPA) for all areas of San Mateo County. The HMP provides comprehensive environmental regulatory compliance inspection services to protect human health and the environment. Additionally, program personnel perform plan reviews and inspections associated with the construction, upgrading, and closure of hazardous materials storage facilities and equipment.

Under authority granted by the state, the county's HMP administers the following programs:

- Hazardous Waste Generator Program (California Health and Safety Code Chapter 6.5)
- Hazardous Waste Tiered Permitting (California Health and Safety Code Chapter 6.5)
- Underground Storage Tanks (California Health and Safety Code Chapter 6.7)
- Aboveground Storage Tanks (California Health and Safety Code Chapter 6.67)
- Hazardous Materials Business Plans (California Health and Safety Code Chapter 6.95)
- California Accidental Release Prevention Program (California Health and Safety Code Chapter 6.95)

State and Regional

San Mateo County Environmental Health Division / Hazardous Materials Management

The Federal Emergency Planning and Community Right-To-Know Act 312 requires businesses have available Material Safety Data Sheets (MSDS) and must submit hazardous chemical inventory forms to the State Emergency Response Commission, Local Emergency Preparedness Committee, and local fire department annually on March 1st. Meeting this federal requirement is achieved through compliance with the California Hazardous Materials Business Plan program (CA Health and Safety Code sec 25504 [a-c]). The Hazardous Materials Business Plans describe hazardous materials inventory, storage container types and locations, emergency response and evacuation procedures, and employee hazardous materials training program. Enforcement of hazardous materials management rules and the Hazardous Materials Business Plan (HMBP) is assigned to the Certified Unified Program Agency (CUPA), the San Mateo County Environmental Health Division.

California Department of Toxic Substances Control / Hazardous Waste Management

The Federal Resource Conservation and Recovery Act of 1976 (RCRA) established a “cradle-to-grave” regulatory program governing the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA, individual states may implement their own hazardous

waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements (see Table 4.7-1).

EPA approved California's RCRA program, called the Hazardous Waste Control Law (HWCL) in 1992. In California, the Environmental Protection Agency (Cal EPA) and the DTSC, a department within Cal EPA, regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations also require hazardous waste generators to prepare a Hazardous Waste Contingency Plan that describe hazardous waste storage and secondary containment facilities, emergency response and evacuation procedures, and employee hazardous waste training program. While DTSC generally retains authority, day to day enforcement of hazardous waste management rules is delegated to the CUPA, the San Mateo County Environmental Health Division.

Hazardous Materials Transportation

The State of California has adopted federal DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR). In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state (26 CCR). Both regulatory programs apply in California. The two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the Code of Federal Regulations (CFR) (see *Fed/ OSHA*, above). Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations (8 CCR) concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/ OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. State laws, like federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies, including Cal EPA, CHP, California Department of Fish and Wildlife (CDFW), the San Francisco Bay Regional Water Quality Control Board (RWQCB), San Mateo County Fire Department (SMFD), and the Redwood City Fire Department (RCFD). The RCFD and SMFD provide first response capabilities, if needed, for hazardous materials emergencies within the project area.

Local Regulations

Redwood City Fire Department and Redwood City Building

The Redwood City Fire Department and Redwood City Community Development Department also have regulatory roles in protecting the public from dangers associated with hazardous materials and wastes. Fire Department permits are required for storing, dispensing, using, or handling hazardous materials in excess of quantities specified in Section 105 of the 2012 International Fire Code/2013 California Fire Code as adopted and amended by the City of Redwood City.

City/County Council of Governments (C/CAG) of San Mateo County and the Federal Aviation Administration (FAA)

The San Carlos Airport is located approximately 1.8 miles west of the Project site. The C/CAG of San Mateo County, in its designated role as the Airport Land Use Commission (ALUC) (C/CAG Board) for San Mateo County, has adopted the land use control provisions for airport vicinities identified in Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace for the San Carlos Airport*, Guidelines for determining if a land use may be an obstruction to air navigation are set forth in FAR Part 77. Any proposed new construction or expansion of existing structures that would penetrate any of the FAR Part 77 would be deemed incompatible unless specifically determined otherwise by the FAA.

The C/CAG Board has also adopted an Airport Influence Area boundary for San Carlos Airport. The boundary consists of two areas: Area A and Area B. Area A extends from the Burlingame/ San Mateo border to the San Mateo County/Santa Clara County line, defines a boundary within which disclosure of the proximity of an airport is required, per State law, as part of all real estate sales or leases within the boundary. The Project site is located entirely within Area A. Area B, known as the C/CAG/ALUC Referral Boundary, is a geographic area within which affected local agencies must refer their proposed land use policy to the C/CAG Board and ALUC for a determination of the consistency of the proposed land use policy action(s) with the relevant provisions contained in the most recent version of the San Mateo County Comprehensive Airport Land Use Plan (CLUP), as amended for San Carlos Airport.

Redwood City General Plan

The *Public Safety Element* of the Redwood City General Plan describes the following hazardous materials and hazards policies, adopted for the purpose of avoiding or mitigating an environmental effect, that apply to the Project. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***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.

4.7.3 Project Baseline

Under CEQA, the project baseline is normally defined as the physical conditions of the environment as it exists at the time of publication of the Notice of Preparation of the EIR. Information regarding past releases of hazardous materials was obtained from the environmental review of the Project site as reported by RPS (formerly Iris Environmental) in March 2018. Therefore, this analysis evaluates the Project impacts assuming baseline conditions as largely defined by the findings of the RPS 2018 report.

4.7.4 Significance Criteria

Based on California Environmental Quality Act (CEQA) *Guidelines* Appendix G, a project would cause adverse impacts related to hazards and hazardous materials 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 create a significant hazard to the public or the environment;

e) 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 result in a safety hazard for people residing or working in the project area;

f) For a project within the vicinity of a private airstrip, would result in a safety hazard for people residing or working in the project area;

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Exposure of the public to air emission hazards associated with construction and operation of the Project is addressed in Section 4.2, *Air Quality*.

Approach to Analysis

Harbor View Project

The analysis of the Project in this document uses the findings from the 2018 RPS report as well as Project characteristics. The Project is also evaluated on the basis of how the current regulatory framework affects the development of the Project.

Cumulative

Regarding the assessment of cumulative impacts, a project's contribution to cumulative impacts to regional air quality should be considered significant if the project's impact individually would be significant (i.e., exceeds the BAAQMD's quantitative thresholds).

Topics Considered and Determined No Impact

The following topics are considered to have no impact to the Project because of the Project site location. These topics are not discussed any further in this EIR.

- ***School Emissions*** (Criterion c). There are no schools located within a quarter mile of the Project site. The closest school to the Project site is the Summit Charter High School located approximately 0.3 miles southeast. However, proposed land uses would consist primarily of commercial land uses which are not associated with substantive hazardous emissions. Therefore, the potential for the Project to affect schools within a quarter mile of the Project site is very low and not discussed further.
- ***Airstrip*** (Criterion f). The Project site is not located within 2 miles of a private airstrip.
- ***Emergency Plan or Evacuation Plan*** (Criterion g). The Project site is located in a developed urban area with an existing road network. New development withinin the Project site would not permanently interfere with the existing road network or with the ability for emergency response vehicles to access all areas within the Project vicinity. Overall, the Project would not impede emergency access routes and would continue to maintain the existing city grid systems. Additionally, the Project would not result in permanent road closures that would physically interfere with emergency response or evacuation plans. Therefore, development of the Project would not impair or interfere with any emergency response or emergency evacuation plans.

- ***Wildland Fires*** (Criterion h). The Project site is located in a developed region that is not adjacent to wildlands that would be considered at risk for wildland fires.

4.7.5 Impacts of the Project

Impact HAZ-1: The Project could create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials (Criterion a). (Potentially Significant)

Development of the Project would include earthwork activities that could encounter contaminants related to past land uses. If high enough levels of hazardous materials in excavated soils should go undetected, health and safety risks to workers and the public could occur. Exposure to hazardous materials could cause various short-term and/or long-term health effects. Possible health effects could be acute (immediate, or of short-term severity), chronic (long-term, recurring, or resulting from repeated exposure), or both. Acute effects, often resulting from a single exposure, could result in a range of effects from minor to major, such as nausea, vomiting, headache, dizziness, or burns. Chronic exposure could result in systemic damage or damage to organs, such as the lungs, liver, or kidneys. Health effects would be specific to each hazardous material.

As noted above in the setting section, contaminants of potential concern have been identified in various areas of the site some which will require remediation. A Project-specific Phase I Environmental Site Assessment has been conducted and identified potential areas of concern as described in Section 4.7.1, *Setting,* above. A Draft RAW has been prepared for the Project site based on the presence of recognized environmental conditions (RPS, 2018). Implementation of this plan in accordance with Mitigation Measures HAZ-1 and HAZ-2, would minimize the potential exposure to workers, the public, and the environment.

Contamination may also be present from previously unidentified releases that occurred. It is not uncommon to encounter unexpected conditions once groundbreaking activities commence. If residual impacts are encountered during development, soils would be managed under the SMP. As stated above, the implementation of Mitigation Measures HAZ-1 and HAZ-2, would minimize the potential exposure to workers, the public and the environment.

Once constructed, the operation of the Project would likely handle, store, and transport various hazardous materials and consequently generate hazardous wastes. In general, current regulations require that all hazardous materials and wastes are stored, handled, and disposed of according to a host of safety requirements that are intended to protect human health and the environment. Generally, hazardous materials uses associated with commercial land uses are handled and transported in relatively small quantities and because the health effects associated with them are typically not as serious as industrial uses, significant adverse effects on the environment are less common.

Nonetheless, the applicant would be required to submit a Hazardous Materials Business Plan for review and approval by the SMCEH. Once approved this plan will be kept on file and updated as necessary. The Hazardous Materials Business Plan would ensure that employees are adequately trained to handle the materials and provides information to the Redwood City Fire Department

should emergency response be required. Implementation of these existing regulatory requirements would ensure that the operational land uses that involve hazardous materials or wastes would be less than significant.

> **Mitigation Measure HAZ-1:** Prior to the issuance of a grading permit, the Project applicant shall implement the recommendations contained in the Project-specific Phase I Assessment (RPS, 2018) and submit to the City evidence of approval of the Draft Removal Action Workplan (RAW) by the Department of Toxic Substances Control (DTSC) that contains a Site Management Plan (SMP), Health and Safety Plan stamped by a Certified Industrial Hygienist, a voluntary Dust Control Plan/Asbestos Dust Mitigation Plan/Asbestos Air Monitoring Plan, a Waste Transportation Plan, and Construction Quality Assurance Plan.
>
> **Mitigation Measure HAZ-2:** Prior to the issuance of a grading permit, the Project applicant shall record a Land Use Covenant (LUC), in a form approved by the City, that requires that the SMP to be followed during future earthwork activities during and post-development. The LUC shall include conditional language describing when implementation of the SMP will be required for earthwork activities beneath either hardscaped areas or a beneath a specified thickness of clean fill or marker fabric required for non-hardscaped areas. The LUC shall also include language to prohibit the use of groundwater beneath the Project site.
>
> **Significance after Mitigation:** Less than Significant

Impact HAZ-2: Disturbance and release of hazardous structural and building components (i.e., asbestos, lead, and PCBs) with the Project during the demolition phase of construction or transport of these materials would not expose construction workers, the public, or the environment to adverse conditions related to hazardous materials handling (Criteria a). (Less than Significant)

Based on the age of some of the structures within the Project site, some of the existing buildings may contain asbestos, lead-based paint, and/or PCBs.

Asbestos

As noted above, potential exposure to asbestos, and its related chronic adverse health effects, is possible through demolition activities. Affected buildings would need appropriate abatement of any identified asbestos prior to demolition. ACMs are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal-OSHA. Retaining licensed contractors to conduct asbestos abatement work is required as part of a demolition permit and includes notifying the Bay Area Air Quality Management District (BAAQMD). The City Building Division enforces these requirements through its requirements for demolition permits, which require an approved permit from the BAAQMD verifying the complete abatement of asbestos from any structure to be demolished, prior to issuance of a demolition permit. Adherence to all the aforementioned regulatory requirements would ensure that potential impacts related to ACMs would be less than significant.

Lead and Lead-based Paint

Lead-based paint could be separated from building materials during any demolition processes and pose a hazard to workers. Both the Federal and California OSHAs regulate all worker exposure during construction activities that impact lead-based paint. Interim Final Rule found in 29 CFR Part 1926.62 covers construction work where employees may be exposed to lead during such activities as demolitions, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, training, etc. Potential violations related to lead can be reported to the EPA and the County Environmental Health Division for enforcement.

Requirements for lead hazard evaluation and abatement activities, accreditation of training providers, and certification of individuals engaged in lead-based paint activities is found in California Code of Regulations Title 17, Section 35001 et seq. California's lead accreditation and certification program began in June, 1994. With implementation of an abatement plan, as required, and all the regulatory requirements regarding identification, handling, and disposal of lead based paint, the potential impacts related to demolition activities of lead-based paint materials would be less than significant.

PCB-containing Materials

The presence of PCB-containing materials may be present within the existing structures in the project site. Generally, the majority of PCB containing electrical transformers has been abated of PCBs. For the isolated locations where PCBs remain, appropriate identification and removal work would be required according to Federal and State standards. PCBs are managed under the Toxic Substances Control Act (TSCA) and the PCB regulations found at 40 Code of Federal Regulations 761. Therefore, with adherence to regulatory requirements, the potential for PCBs in aboveground structures to impact Project activities would be reduced to less-than-significant levels.

Therefore, with adherence to the regulatory requirements that apply to any identified hazardous building materials, the potential impacts from disturbance of these materials during demolition activities are less than significant.

Mitigation: None Required

Impact HAZ-3: The Project could 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 (Criterion b). (Less than Significant)

Any future construction activities would require the use of certain hazardous materials, such as fuels, oils, lubricants, solvents, and glues. Inadvertent release of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. Since the Project would disturb more than one acre, the Project would be required to adhere to the requirements of the General Construction Permit issued by the Regional Water Quality Control

Board as discussed in Section 4.8, *Hydrology and Water Quality*. One of the requirements of the permit is the implementation of a storm water pollution prevention plan which includes measures to prevent the accidental release of hazardous materials used during construction. Therefore, the impact of upset and accidental release conditions during the construction phases of the Project would be less than significant.

Larger developments can also potentially include onsite storage and/or use of quantities of materials capable of significantly impacting soil and groundwater. Once constructed, as noted above, the future commercial use would be required to submit a Hazardous Materials Business Plan for review and approval by the SMCEH. The Plan would include spill response procedures and provide information to the Redwood City Fire Department should emergency response be required. Implementation of this Plan would minimize the potential for upset and accidental release conditions as well as provide protocols to contain and/or minimize the extent of release should one occur. As a result, the impact of upset and accidental release conditions during the operational phases of future development would be less than significant.

Mitigation: None Required.

Impact HAZ-4: The Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment (Criterion d). (Potentially Significant)

According to the environmental evaluation, the Project site was identified as a location where a past release of hazardous materials has occurred (RPS, 2018). If legacy contaminants were to be exposed during construction or left beneath new development, workers, future occupants, or the public could be adversely affected through exposure where concentrations are high enough to cause harm. However, as noted above, additional site investigation work has occurred at the site and a Draft RAW has been prepared for the site and if residual impacts are encountered during development, soils would be managed under the SMP. Remediation objectives would be met prior to commencement of future development of the site. With implementation of Mitigation Measures HAZ-1 and HAZ-2 above, the potential for encountering any previously unidentified contamination would be minimized. As a result, the potential impact from the Project site being included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 would be less than significant with implementation of Mitigation Measures HAZ-1 and HAZ-2.

Mitigation Measure: Implement Mitigation Measure **HAZ-1 and HAZ-2.**

Significance after Mitigation: Less than Significant

Impact HAZ-5: Development of the Project would not be located within the airport land use plan for the San Carlos Airport resulting in a safety hazard for people residing or working in the project area (Criterion e). (Less than Significant)

The Project site is located east of Maple Street (Area A) and is therefore outside of the Airport Influence Area for the San Carlos Airport (Area B) that requires referral to the C/CAG Board and ALUC for a determination of the land use policy consistency. Therefore, development of the Project will comply with the State requirement that all real estate sales or leases disclose the proximity of an airport as part of within the boundary. As a result, the potential impact would be less than significant.

Mitigation Measure: None Required

4.7.6 Cumulative Impacts

Impact HAZ-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, could contribute considerably to cumulative impacts related to hazards and hazardous materials. (Potentially Significant)

Hazardous material impacts typically occur in a local or site-specific context versus a cumulative context combined with other development projects. It is possible, however for combined effects of transporting and disposal of hazardous materials to be affected by cumulative development.

The Project, with implementation of the identified mitigation measures above, would have a less than significant hazardous materials impact to the public or the environment within the Project site. Other foreseeable development within the area, although likely increasing the potential to disturb existing contamination and potentially increase the handling of hazardous materials, would be required to comply with the same regulatory framework as the Project. These stringent regulatory requirements includes federal and state regulatory requirements for transporting (CalEPA and Caltrans) hazardous materials or cargo (including fuel and other materials used in all motor vehicles) on public roads or disposing of hazardous materials (CalEPA, Department of Toxic Substances Control, San Mateo County Environmental Health). Therefore, the effect of the Project on hazardous materials, in combination with other foreseeable projects, would be less than significant. Therefore, no additional mitigation is required.

Mitigation Measure HAZ-1.CU: Implement Mitigation Measures **HAZ-1** and **HAZ-2**.

Significance after Mitigation: Less than Significant

References – Hazards and Hazardous Materials

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State Water Resources Control Board (SWRCB), 2018a. Geotracker Database Search, https://geotracker.waterboards.ca.gov/map/?global_id=T0608100879, accessed August 15, 2018.

SWRCB, 2018b. Geotracker Database, Union Pacific Locomotive Release (T10000003420). Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003420, accessed August 15, 2018.

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4.8 Hydrology and Water Quality

This section describes existing hydrologic conditions in the Project vicinity and presents conditions and applicable regulations that pertain to surface water drainage, stormwater management, flooding potential, and water quality. This section also discusses the potential changes in the aforementioned hydrological conditions (including flooding associated with sea level rise) and water quality that could result from implementation of the Project, and identifies potential project impacts and feasible mitigation measures where necessary.

4.8.1 Environmental Setting

Hydrology

Regional

Redwood City lies in the Central Basin within the San Francisco Bay hydrologic region. San Francisco Bay marks a natural topographic separation between the northern and southern coastal mountain ranges. The San Francisco Bay estuarine system conveys the waters of the Sacramento and San Joaquin rivers into the Pacific Ocean. The rivers enter the Bay through the delta at the eastern end of Suisun Bay. Within the San Francisco Bay hydrologic region, the City is a part of the South Bay planning area. This unit is divided into a number of smaller watersheds that are defined by major drainages or hydrologic features of the region. A series of linear drainage basins trending southwest to northeast extend from the ridges of the Santa Cruz Mountains across the alluvial plain[1] to San Francisco Bay. The Bair Island Wetlands, located northwest of the Redwood Creek Channel is also considered a significant hydrologic feature of the South Bay planning area (RWQCB, 2007).

Project Site

Currently nearly 64 percent of the approximately 27-acre Project site is comprised of impervious surfaces such as pavement or buildings which limits on-site water infiltration (BKF, 2018).[2] The Project vicinity includes the Redwood Creek Channel to the west of the Project site, which contains a deep water channel that has been deepened and widened over the years. The Redwood Creek Channel is part of a system of sloughs and channels that connect freshwater drainages from the foothills with the Bay.

Redwood and Steinberger Creeks are in the Project vicinity. Redwood Creek flows from the north side of the City, under Highway 101, combines with Steinberger Creek, and then flows into the San Francisco Bay. Both creeks, within the extents of the Project vicinity, exist in a natural condition.

1 Alluvial plain is an area formed by deposition of sediment by a stream.
2 Approximately 439,654 square feet (sf) of the project site is comprised of pervious surfaces and approximately 740,094 sf by impervious surfaces (BKF, 2018).

In June 2012, BKF Engineers prepared a Draft Redwood Creek Deficiency Review (Report), which identifies the lower reaches of Redwood Creek (near the City Police Station on Maple Street) as saline emergent wetlands (discussed further in Section 4.3, *Biological Resources*). They found Redwood Creek to have capacity for a 30-year storm event. Although most of the Creek does not have capacity for the 100-year event, improvements were deemed impractical and no creek repair to increase capacity was recommended within the Report (Fuscoe, 2014).

Infrastructure

The City is divided into several major storm water drainage areas, and the overall system includes pumps stations, standard storm drain catch basins, siphon storm drain catch basins, miles of storm drain pipe, miles of creeks, and in certain areas, retention basins (in Redwood Shores).

Pumping is required due to the combination of tidal action and the low elevation. The existing storm drain system that serves the Project site is comprised of four separate watersheds named by the downstream pump station or outfall location (West Yost, 2015). The Project site is part of the greater Redwood City Eastern Low-Lying Area. The four watersheds, include:

1. Oddstad (pump station).
2. Maple Street K-mart (pump station)
3. Maple Street (gravity outfall)
4. Seaport Boulevard (Pump Station)

Each system discharges into Steinberger Creek. Two of the systems include runoff from both the south side of Highway 101 and the Project vicinity. One of these two systems directs gravity flow into the Oddstad Pump Station located adjacent to the north side of Highway 101, adjacent to the Project Site. The storm waters from the Oddstad station are pumped through a 39” pipe within the Project vicinity where they discharge into Steinberger Creek. The second drainage area is directed through gravity lines into an existing wetland area along the east loop of Maple Street, which then connects to the K-Mart Pump Station at the edge of Steinberger Creek. The third system collects flows on the west loop of Maple Street and discharges via gravity into Steinberger Creek. The Seaport Boulevard (pump station) system collects runoff from a low-lying 52 acre watershed that consists of industrial and commercial land uses. The runoff is conveyed in intermittent roadside ditches, culverts, and drainage channels that ultimately discharge through the Seaport Boulevard Pump Station to Steinberger Creek.

The Project vicinity is serviced by a combination of gravity mains, force mains, and the aforementioned pump stations. Pumping is required because of tidal action and low elevation. Localized flooding occurs when a rainfall greater than the 30-year storm event occurs and overwhelms the capacity of the storm drains and pumps.

Jurisdictions

Redwood Creek and Steinberger Creek are within the jurisdiction of the California Department of Fish and Wildlife (CDFW), San Francisco Bay Regional Water Quality Control Board (RWQCB), and the U.S. Army Corps of Engineers (Corps), and any work associated with these

creeks would require permits from these approving agencies. Two linear drainage features carry local stormwater runoff from the Project vicinity into Redwood Creek. Also, the Ferrari Property north of the Project site is a shallow open-water area. These areas fall within the jurisdiction of the US Corps and RWQCB pursuant to the Clean Water Act (Sections 404 and 401) (also see Section 4.3, *Biological Resources*). Additional detail on these permitting and regulatory bodies is provided under *Regulatory Setting*, below.

Water Quality

Regional

The San Francisco Bay is an estuary with complex hydrodynamics that result in intricate sediment and chemical fate transport processes. The water quality in the Bay is influenced by a variety of factors including a mix of point and non-point source discharges, groundwater and surface water interactions, and water quality/water quantity relationships.[3] A number of water bodies in the Bay are impaired due to excessive siltation, but it is very difficult to distinguish between excessive siltation and impairment due to flow alterations. The State and RWQCBs have implemented the Water Management Initiative as the model for which water resources are to be protected. The RWQCB is now structured to promote a watershed-based approach towards implementation of programs, with particular emphasis on integration of programs within county watershed management areas. RWQCB staff has identified issues for the San Francisco Watershed Management Area, which would include the Project site, based on consideration of a combination of water quality, customer service, and program requirements.

During periods of wet weather, rain carries pollutants and sediments from all parts of a watershed into surface water bodies such as storm drains, streams, rivers, reservoirs, or marshes. In an urban setting, natural drainage patterns have been altered and stormwater runoffs, as well as non-storm discharges (irrigation water, accidental spills, washdown water, etc.), pick up sediments and contaminants from land surfaces, and transport these pollutants into surface and ground water. These diffuse sources of pollutants range from parking lots, bare earth at construction sites, agricultural sites and a host of many other sources. The total amount of pollutants entering aquatic systems from these diffuse, nonpoint sources is now generally considered to be greater than that from any other source, such as pipe discharges (point source).

Project Site

The Project site is currently covered by buildings, pavement, and open storage areas. The majority of the land area of the site is impervious surface. It is assumed these surfaces generate the typical range of non-point source urban pollutants, such as litter, packaging materials, heavy metals, oil and gas residues, tire fragments, and debris normally deposited by vehicular traffic.

[3] 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. Nonpoint pollutant sources are sources that do not have a single, identifiable discharge point but are rather a combination of many sources.

Pollutant sources discharging into the Redwood Creek also include both point and nonpoint discharges, as discussed for the broader regional context above. Point sources in the Project vicinity likely include discharges through pipelines that drain into Redwood Creek. The Project vicinity also experiences nonpoint overland stormwater flow and urban runoff, which can cause pollution due to sediments, sand, industrial fuels, equipment and other operations, infiltration from sewer system, accidental spills of hazardous materials, and construction activities.

Groundwater Resources

The Project site is located within the San Mateo County portion of the 580-square-mile Santa Clara Valley groundwater basin that surrounds the southerly end of San Francisco Bay. Topographically defined by the coastside and East Bay hills that rim the Bay, the Santa Clara Valley basin consists of younger, water-bearing alluvial deposits that are mainly recharged by percolation through the coarse, gravelly material found in the region's streambeds and, to a lesser extent, by the direct percolation of rainfall within relatively pervious soils found in some upland valleys. Water quality is generally acceptable within the bayside areas of the County, and well yields can be adequate for a range of uses, including municipal supply.

Flooding

Flooding is inundation of normally dry land as a result of rise in the level of surface waters or rapid accumulation of stormwater runoff. Flooding can also occur due to tsunamis, seiches, failure of dams, or sea level rise (as also discussed below separately). Tsunamis are waves caused by an underwater earthquake, landslide, or volcanic eruption, while seiches are waves in an enclosed or semi-enclosed body of water such as a lake, reservoir, or harbor. Flooding from tsunamis is more likely to affect Pacific Ocean coastlines and although, low-lying areas along San Francisco Bay are susceptible to tsunamis entering the bay, they are expected to attenuate or diminish with distance from the Golden Gate entrance. While a portion of Redwood City is within a tsunami inundation area, the Project site is not located within this area (California Emergency Management Area, 2009). In addition, the San Francisco Bay is not considered an enclosed body of water that is susceptible to seiche waves. Flooding can also occur due to dam failure. Although some areas in Redwood City are within one or more dam failure inundation areas, the Project site does not lie within any of these areas (San Mateo County 2005; ABAG, 2016).

As previously referenced, localized flooding in the Project vicinity currently occurs frequently when heavy rainfall overwhelms the capacity of the existing storm drains and pumps that were designed to older standards (West Yost, 2015). Increased flooding is experienced during the combination of high tides and major rainstorms and can occur during some high tides. The high tides raise the controlling water surface elevation within the creeks; backwater occurs and inundates adjacent, low-lying lands. The Project site is partially within the 100-year flood hazard area as defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FEMA, 2012), which has a base flood elevation of 10 feet above the North American Vertical Datum of 1988 (NAVD88). A preliminary update to the FEMA flood map, maintains that the Project site will be within the 100-year flood hazard area with the base flood elevation at 10 ft (NAVD88) (FEMA, 2015).

Precipitation and Stormwater Runoff

Stormwater runoff is that portion of rainfall that is not absorbed into the ground, taken up by plants, or lost through evaporation. Coarse-grained, permeable soils and heavy vegetative cover reduce runoff, while steep slopes, fine-grained soils, and impervious surfaces (buildings and pavement) increase runoff. The duration, frequency, and total amount of rainfall also affect the volume of runoff; frequent or heavy rains saturate the soil and reduce infiltration, so the percentage of rain that runs off the land increases with the severity of a storm. As discussed under Hydrology, most of the Project site is currently covered with pavement, which limits pervious surfaces.

Average annual rainfall in the region is approximately 20 inches. Nearly 95 percent of this precipitation falls during the winter rainy season, October through April, with the heaviest rainfall typically occurring in December, January, and February. Rainfall intensity during a 10-minute duration, 100-year recurrence interval storm is approximately 2.5 inches per hour. During more frequent 10-year storms, rainfall intensity decreases, to 1.75 inches per hour. (O'Connell, 2018)

Sea Level Rise

As previously discussed in Section 4.6, *Greenhouse Gas Emissions and Climate Change*, of this Draft EIR, a rise in average global temperature due largely to an increase in greenhouse gas (GHG) emissions is expected to be accompanied by a rise in the global sea level.

The State of California has provided planning guidance for assessing and adapting to the impacts of sea level rise. The State's current guidance (Ocean Protection Council, 2018) incorporates the most recent scientific findings from Griggs et al. (2017), the state's update of sea level rise science. Across the set of greenhouse gas emissions profiles they considered, Griggs et al. (2017) estimate that the likely (67% probability) range for 2050 sea level rise will be between 0.2 and 0.7 feet. For 2050, they also estimate a 5% probability that sea level rise is 0.9 feet and a 0.5% probability that sea level rise is 1.9 feet. In addition, Griggs et al. (2017) estimate that the likely (67% probability) range for 2100 sea level rise will be between 1.0 and 3.4 feet. For 2100, they also estimate a 5% probability that sea level rise is 3.2-4.4 feet and a 0.5% probability that sea level rise is 5.7-6.9 feet. The ranges account for uncertainty in future greenhouse gas emissions and Earth's response to these emissions. In spite of this uncertainty in the latest projections, all projections trend upward and are similar in magnitude when rounded to the nearest foot and allowing for variability of one or two decades.

The Project site is currently at risk of inundation from the flooding that originates from San Francisco Bay, as indicated by the westerly portion of the Project site falling within the 100-year flood hazard region Zone AE, with a base flood elevation of 10 feet NAVD88. For three feet of sea level rise, projected within the likely range by 2100, the inundation during 100-year flooding would increase in depth and extent for the Project site. In addition, as water levels in San Francisco Bay increase with sea level rise and coincide with high creek discharge, there will be an increased potential for flooding due to back water effects along Redwood Creek.

4.8.2 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. 1251 – 1376) established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. Environmental Protection Agency (US EPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The U.S. Army Corps of Engineers (Corps) has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the CWA every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards. Compliance with the water quality standards required under Section 401 is a condition for issuance of a Section 404 permit. Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects.

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Generally, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the Section 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

United States Environmental Protection Agency

The US EPA is responsible for implementing federal laws designed to protect air, water, and land. While numerous federal environmental laws guide US EPA's activities, its primary mandate with respect to water quality is the CWA. US EPA has developed national technology-based water quality standards and states have developed water quality standards in accordance with the CWA. US EPA also has authority to establish water quality standards if a state fails to do so. In the National Toxics Rule (NTR) and CTR, US EPA has established such standards for certain toxic pollutants applicable to California waters. These standards are used to determine the amount and the conditions under which pollutants can be discharged.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved state NPDES program. The US EPA has delegated authority for NPDES permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay RWQCB regulates water quality in the Project vicinity and surroundings. Under this system, municipal and industrial facilities are required to obtain a NPDES permit that specifies allowable limits, based on available wastewater treatment technologies, for pollutant levels in their effluent. Stormwater discharges are regulated somewhat differently than pollutant discharges. Discharge of stormwater runoff from construction areas of one acre or more requires either an individual permit issued by the RWQCB or coverage under the statewide Construction General Stormwater Permit for stormwater discharges (discussed below). Specific industries and public facilities, including wastewater treatment plants that have direct stormwater discharges to navigable waters, are also required to obtain either an individual permit or obtain coverage under the statewide General Industrial Stormwater Permit.

Executive Order 11988

Under Executive Order 11988, FEMA is responsible for management of floodplain areas defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a 1 percent or greater chance of flooding in any given year (the 10-year floodplain). FEMA is a federal agency whose overall mission is to support citizens and first responders to ensure that the United States builds, sustains, and improves capabilities to prepare for, protect against, respond to, recover from, and mitigate all hazards. With regard to flooding, the Federal Emergency Management Agency provides information, guidance, and regulation associated with flood prevention, mitigation, and response. Under Executive Order 11988, FEMA requires that local governments covered by the federal flood insurance program pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. Through its Flood Insurance and Mitigation Administration, FEMA manages the National Flood Insurance Program, which includes flood insurance, floodplain management, and flood hazard mapping functions. FEMA maps 100-year floodplains within its jurisdiction and provides flood insurance rate information via flood insurance rate maps. San Mateo County has participated in the National Flood Insurance Program since 1975 (San Mateo County, 2018)

State, Regional and Local

Porter-Cologne Act

The SWRCB and the RWQCB share the responsibility under the *Porter-Cologne Act* to formulate and adopt water policies and plans, and to adopt and implement measures to fulfill CWA requirements. In order to meet this requirement for the San Francisco Bay area, the Regional Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) (discussed below) was prepared by the RWQCB to protect the water quality of the State according to the beneficial uses identified for each water body. Prior to authorizations of waste discharge by the RWQCB, the Porter-Cologne Act requires reports of waste discharges to be filed. The RWQCB then prescribes

Waste Discharge Requirements, which serve as NPDES permits under a provision of the Porter-Cologne Act.

Water Quality Control Plan for the San Francisco Region (Basin Plan)

The RWQCB is responsible for developing and implementing the San Francisco Bay Basin Plan, which documents approaches to implementing state and federal policies in the context of actual water quality conditions. The RWQCB's other activities include permitting of waste discharges and implementing monitoring programs of pollutant effects (as discussed above).

The RWQCB most recently revised the Basin Plan on December 31, 2011, which the SWRCB and the Office of Administrative Law previously adopted in 1995. The Basin Plan identifies beneficial uses of receiving waters, water quality objectives imposed to protect the designated beneficial uses, and strategies and schedules for achieving water quality objectives. Section 303(c)(2)(B) of the Clean Water Act requires basin plans to include water quality objectives governing approximately 68 of US EPA's list of 126 pollutants.

Water quality objectives are achieved primarily through the establishment and enforcement of Waste Discharge Requirements for each wastewater discharger, as discussed under *Porter-Cologne Act*, above. State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State. Therefore, all water resources must be protected from pollution and nuisance that may occur from waste discharges. Beneficial uses of surface waters, ground waters, marshes, and mud flats serve as a basis for establishing water quality standards and discharge prohibitions to attain this goal.

Construction General Permit

The California Construction Stormwater Permit (Construction General Permit)[4], adopted by the SWRCB, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-storm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or 40 Code of Federal Regulations 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the Nation;

[4] *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Dewatering Permit

Construction activities such as excavation and trenching in areas with shallow groundwater would require dewatering, which would be subject to the RWQCB construction dewatering permit requirements. Dewatering operations are regulated under State requirements for stormwater pollution prevention and control. Discharge of non-stormwater from a trench or excavation that contains sediments or other pollutants to sanitary sewer, storm drain systems, creek bed (even if dry), or receiving waters without treatment is prohibited. Discharge of uncontaminated groundwater from dewatering is a conditionally exempted discharge by the RWQCB. However, the removed water could potentially be contaminated with chemicals released from construction equipment or sediments from excavation. Therefore, disposal of dewatering discharge would require permits either from the RWQCB for discharge to surface creeks and groundwater or from local agencies for discharge to storm or sanitary sewers. The RWQCB lists non-stormwater discharge controls specifically for dewatering operations. The control measures are described in the mitigation for impacts discussion. Discharge of water resulting from dewatering operations would require an NPDES Permit, or a waiver (exemption) from the RWQCB, which would establish discharge limitations for specific chemicals (if they occur in the dewatering flows).

C.3 Permit Requirements

The San Francisco Bay State Water Resources Control Board NPDES permit lists provision C.3 that governs storm drain systems and regulates post-construction stormwater runoff. The provision requires new development and redevelopment projects to incorporate treatment measures and other appropriate source control and site design features to reduce the pollutant load in stormwater discharges and to manage runoff flows. “Redevelopment” is defined as a project on a previously developed site that results in the addition or replacement of a minimum of 10,000 square feet of impervious surface. The Project would replace more than 10,000 square feet of impervious surfaces and would be required to implement treatment measures and appropriate source control and site design measures under the NPDES permit.

Provision C.3 also identifies requirements for the installation of Green Infrastructure to meet load reduction requirements outlined in the NPDES permit including “No missed Opportunities” for planned projects with the potential for green infrastructure improvements. With the improvement of the Blomquist and Seaport frontages included in the Project, the construction of treatment

measures would be required for the treatment of the drainage areas that are tributary to the Project frontages. (O'Connell, 2018)

City of Redwood City

Redwood City General Plan

The Redwood City General Plan identifies multiple policies in its *Built Environment Element, Natural Resources Element, and Public Services Element*, that pertain to hydrology and water quality considerations pertinent to the Harbor View project, and that are adopted for the purpose of avoiding or mitigating an environmental effect issues. Policies listed below that are also considered land use policies are addressed in Section 4.9, *Land Use and Planning*, of this Draft EIR.

- ***Policy BE-24.11*:** Consider the impacts of global warming, such as rising sea levels and floodplain areas, when reviewing plans for new development.
- ***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.

Redwood City Stormwater Management and Discharge Control Plan

The Redwood City *Municipal Code*, Chapter 27A, sets forth the Redwood City Stormwater Management and Discharge Control Program (SMDCP). The program outlines exempted activities (e.g., NPDES permitted discharges), broad watercourse protection objectives, illicit discharge prohibitions, and BMPs for new and redevelopment projects. It also refers to the NPDES regulations for stormwater protection and treatment (previously discussed under *SMCWPPP*).

Redwood City Municipal Code

The Redwood City *Municipal Code*, Chapter 41, set forth the Redwood City Floodplain Management regulations. The purpose of Chapter 41 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;

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.

In order to accomplish its purposes, 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.

Redwood City Engineering Standards

The City of Redwood City's Engineering Standards Volume 3, Part V Storm Drain Design Criteria require a hydrology study and hydraulic analyses be submitted with all grading plans. The Standards also require that every project must complete the C.3 and C.6 Development Review Checklist. The checklist shows the requirements needed in order to minimize stormwater pollution as part of the MS4 permit requirements. In addition, projects that disturb more than one acre of land will need to file a Notice of Intent with the SWRCB and prepare a SWPPP.

Redwood City Drainage Guidelines for Commercial Development

The City's Stormwater Pollution Prevention Program stipulates drainage guidelines for developers and builders. The guidelines include filling a notice of intent with the RWQCB, preparing a SWPPP, and implementing pollutant source control measures and BMPs. The guideline also details the stormwater retention design criteria to be used for storm drainage systems. (O'Connell, 2018)

4.8.3 Project Baseline

The Project site is an existing underdeveloped area that is largely covered by impervious surfaces and stormwater is conveyed off-site by a drainage system that empties directly into Redwood and Steinberger Creeks. Baseline conditions reflect the hydrologic and stormwater quality in the Project site as they existed at the time that the Notice of Preparation for the Project was issued on January 12, 2018. Specific conditions are described above in Environmental Setting and documented throughout.

4.8.4 Significance Criteria

Based on California Environmental Quality Act (CEQA) Guidelines Appendix G, the Project would cause adverse impacts to hydrology and water quality if it would:

a) Violate any water quality standards or waste discharge requirements;

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface run-off in a manner which would result in flooding on-or off-site;

e) 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;

f) Otherwise substantially degrade water quality;

g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows;

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or

j) Result in or cause inundation by seiche, tsunami, or mudflow.

Approach to Analysis

Construction and Operation

The analysis of the Project in this document is based on the conditions that are known and the proposed plans including a utility feasibility report prepared for the site by BKF Engineers that includes a discussion of the storm drainage (BKF, 2018).

CEQA does not require lead agencies to consider how existing hazards or conditions might impact a project's users or residents, except where the project would significantly exacerbate an existing environmental hazard. Accordingly, hazards resulting from a project that places development in an existing or future flood hazard area are not considered impacts under CEQA unless the project would significantly exacerbate the flood hazard. Thus, the impact analysis evaluates whether the proposed Project would substantially exacerbate an existing or future flood hazard in the Project area, resulting in a substantial risk of loss, injury, or death. The impact is

considered significant if the proposed Project would substantially exacerbate flood hazards by increasing the frequency or severity of flooding or causing flooding to occur in an area that would not be subject to flooding without the project. Impacts related to existing and future flooding (including existing flooding hazard and future flood hazard due to climate change-induced sea level rise) are discussed in Impact HYD-6.

Topics Considered and Determined No Impact

The following topics are considered to have no impact to the Project based on the proposed Project plan, its geographical location, and underlying conditions according to several geotechnical investigations that have occurred within the Project site and vicinity. No impact discussion is provided for these topics for the following reasons:

- ***Otherwise Degrade Water Quality*** (Criterion f). The Project would allow for the Project site to be redeveloped with new land uses. However, aside from changes to drainage patterns associated with new development, which is discussed below, there are no industrial or other land uses that would include discharge of water that might otherwise affect water quality of receiving waters. Therefore, there would be no impact related to this criterion.
- ***Flooding, Including Flooding as a Result Levee or Dam Failure*** (Criterion i). The Project site is not protected by levee or within a dam inundation area (San Mateo County, 2005). Therefore, there would be no impact related to this criterion with regard to levee or dam failure. Flooding is generally addressed in Impact HYD-6.
- ***Seiche, Tsunami, or Mudflow*** (Criterion j). The Project site is not located immediately adjacent to the Bay shoreline, but relatively inland although close to the Redwood Creek channel. However, according to mapping compiled by the Association of Bay Area Governments, the Project site is not located within a tsunami inundation hazard area (ABAG, 2016). The relatively flat topography of the site and surrounding area also makes it unlikely to experience mudflows. Therefore, considering the location of the Project, which is not immediately adjacent to an enclosed or semi-enclosed water body where seiche waves could become a hazard, within a tsunami hazard area, or in an area susceptible to mudflows, there would be no impact from these potential hazards.

4.8.5 Impacts of the Project

Impact HYD-1: The Project would not violate water quality requirements or waste discharge requirements (Criteria a). (Less than Significant)

Construction

Project construction would require earthwork activities that would include disturbance of surface vegetation, grading, excavation of soils, and the placement of imported engineered soils on the Project site. During construction, existing impervious surfaces and established ground cover that serves to stabilize site soils would be removed, potentially resulting in increased erosion and sedimentation.

However, construction activities would be required to comply with NPDES General Construction Activities Permit requirements. The project applicant would be required to prepare a SWPPP for

General Construction Activities to reduce potential impacts to surface water quality during construction. The erosion control and storm water quality BMPs that would be employed to minimize pollutants in storm water runoff would be effective in preventing the discharge of NPDES pollutants to downstream waters. Project compliance with NPDES General Construction Activities Permit requirements are required by law and have proven effective in protecting water quality at construction sites. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Implementation of the SWPPP at the project site would prevent significant construction-related impacts to water quality by ensuring that all construction activities include the implementation of BMPs that minimize the offsite discharge of sedimentation and other pollutants.

Operation

Development associated with the project would result in changes in the amount of impervious surfaces within the Project site. Any increase in the amount of impervious surfaces would have the potential to generate additional stormwater pollution in runoff during storm events. Under existing conditions, the pervious area of the site is approximately 439,654 square feet (sf) and the impervious area is 740,094 sf. The proposed project would increase impervious surfaces to 882,991 sf and reduce pervious surfaces to 296,757 sf, which would represent a 16 percent increase in the impervious surface area (BKF, 2018). The decrease in the amount of pervious surface has the potential to increase stormwater pollution in runoff during storm events.

Despite this reduction in pervious surfaces, the proposed improvements would be required to incorporate LID strategies, such as stormwater reuse, onsite infiltration, and evapotranspiration as initial stormwater management strategies, as identified by Provision C.3. Stormwater treatment measures may also be required in the final design plans in accordance with local stormwater management plans. Treatment control measures may include use of vegetated swales and buffers, grass median strips, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. Filtration systems may be either mechanical (e.g., oil/water separators) or natural (e.g., bioswales and settlement ponds).

In addition, Redwood City maintains *Drainage Guidelines for Commercial Development* (Drainage Guidelines) and has adopted the Redwood City Stormwater Management and Discharge Control Program (SMDCP) which includes drainage control requirements such as exempted activities (e.g., NPDES permitted discharges), broad watercourse protection objectives, illicit discharge prohibitions, and BMPs for new and redevelopment projects.

Adherence to stormwater control measures as a part of the Municipal Regional NPDES stormwater permit and the City's SMDCP and Drainage Guidelines would minimize the water quality impacts to less than significant level.

Mitigation: None Required

Impact HYD-2: The Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (Criteria b). (Less than Significant)

The Project does not require the extraction or importation of any groundwater supplies to meet water supply demand for the project. The City of Redwood City does not access local groundwater supplies due to poor water quality and according to its 2010-2030 Urban Water Management Plan has no plans to in the future (Redwood City, 2015). As noted above, the Project would increase the area of impervious surfaces within the Project site, which would reduce the amount of onsite infiltration of stormwater runoff (BKF, 2018).

However, on-site drainage plans would require the use of LID features such as vegetated swales, permeable paving, use of landscaping for infiltration, and other measures that would retain runoff as much as possible and allow for onsite infiltration. As a result, storm water flows generated from new development associated with the Project would minimize the amount of stormwater discharge offsite as much as possible. In addition, stormwater detention that would be required as part of the Project would encourage groundwater recharge and help to offset the effects of impervious surfaces. As a result, the potential impact of the increased impervious surfaces would be less than significant.

Mitigation: None Required

Impact HYD-3: The Project would not potentially alter the drainage pattern of the site such that it would result in substantial erosion or siltation on or off the site (Criteria c and d). (Less than Significant)

As described in Impact HYD-1 above, the development of the Project would increase of impervious surfaces which could increase the amount of stormwater flows generated onsite. Therefore, concentrated runoff could cause erosion of any exposed soils if the drainage plan is not designed appropriately. However, the Project would be required to adhere to local, regional and state drainage control requirements that include LID measures such as vegetated swales, permeable paving, use of landscaping for infiltration, detention basins, and other measures that would limit the ability of stormwater pollutants to be discharged offsite. The Project would include design standards consistent with local requirements and a Storm Water Management Plan as required by the MS4 NPDES permit which has pollutant source control features such as use of landscaped areas for infiltration of stormwater, permeable paving, and treatment planters. The City of Redwood City has drainage standards, which require detention of stormwater in order to control runoff rates, which in turn reduces the potential to cause erosion or siltation. Implementation of these design features in accordance with Provision C.3 NPDES drainage control requirements have proven effective in controlling erosion potential and minimizing transport of siltation on or off site. Therefore, despite the increase in the area of impervious surfaces, through adherence to drainage control requirements that would slow stormwater pollutants being discharged offsite, the potential impact is considered less than significant.

Mitigation: None Required

Impact HYD-4: The Project would not increase runoff and result in flooding on- or off-site (Criteria e) (Less than Significant)

As described in Impact HYD-1 above, the Project would increase the amount of impervious surfaces at the site by approximately 16 percent, and as a result could increase the amount of runoff from the site. The Project would be required to develop a drainage plan that complies with the City's drainage design standards and the requirements of the San Mateo Countywide Stormwater Pollution Prevention Program (STOPPP) and Provision C.3 NPDES requirements, which include requirements for flow control. The City's drainage design standards require that project drainage infrastructure be designed to adequately convey all runoff from peak storm events. Site specific hydrologic analysis for the proposed development would be required to determine peak flow calculations and ensure that drainage control improvements that can still adequately manage peak flows.

The Project will relocate approximately 334 linear feet of existing storm drain pipe that exists where a portion of Parking Structure A of the proposed Project would be constructed at the southwest area of the Project site, near the existing Oddstad Pump Station. To maintain the existing full flow storm drain flow capacity, the drainage infrastructure would be consistent with the storm drainage system analysis conducted by West Yost (West Yost, 2015) and in accordance with City requirements. To do so, the Project will replace the existing 33-inch storm drain pipe with a 36-inch pipe, and since the length of the relocation is longer than existing conditions, the slope of the new 36-inch pipe (approx. 0.4 percent) would be slightly less than the existing 33-inch pipe (approx. 0.5 percent). The larger, slightly shallower relocated pipe would have a capacity of 42 cubic feet per second (cfs), which is at least the same or more compared to the 37 cfs capacity of the existing, slightly steeper pipe (BKF, 2018).

Therefore, considering the increase in impervious surface area on the Project site, combined with proposed detention basins that would minimize the amount of stormwater discharge off the site as much as possible, and the Project's adherence to drainage control requirements factored into the Project design, the Project would have a less than significant impact related to potential flooding from any increase in storm drainage runoff.

Mitigation: None Required

Impact HYD-5: The Project could exceed the capacity of existing or planned stormwater infrastructure (Criteria e). (Potentially Significant)

The Project area is served by a combination of gravity mains, force mains, and the aforementioned pump stations. Pumping is required because of tidal action and low elevation. The Oddstad Pump Station located immediately adjacent to the Project Site pumps storm waters

within the Project vicinity to discharge into Steinberger Creek. The Project site consists of approximately 76 percent of the area tributary to this pump station (West Yost, 2015).

Existing infrastructure at the Oddstad Pump Station is not sufficient to convey runoff from the site during a 100-year storm event. Per record drawings provided by the City, the Oddstad Pump Station has three pumps (BKF, 2018), and the existing pump station can provide capacity for a 100-year event with two duty pumps activated. Development of the proposed Project will include the raising of site elevations, as well as relocation of existing storm drain facilities described in Impact HYD-4. To ensure the planned stormwater infrastructure would not exceed existing capacity with the proposed Project and have a less than significant impact, the Project will be required to implement Oddstad Pump Station improvements by installing a new redundant duty pump to increase the pump station capacity (West Yost, 2015).

The other portion of the Project site is directed to the disconnected storm system in Seaport Boulevard which directs runoff to the Seaport Pump Station. The Project will need to install stormwater mains in Seaport Boulevard to make the connection to the Seaport Pump Station. (O'Connell, 2018)

Mitigation Measure HYD-5: Pump Station Infrastructure

Prior to issuance of a certificate of occupancy for the Project, the Project sponsor shall install a new redundant duty pump at the Oddstad Pump Station and a new redundant duty pump at the Seaport Pump Station, pursuant to the *Inner Harbor Specific Plan Utilities Engineering Report* prepared by West Yost for the City of Redwood City, April 2015, and new stormwater mains to connect to the Seaport Boulevard Public Station, both in accordance with all applicable City of Redwood City Engineering Standards, to the satisfaction of the City.

Significance after Mitigation: Less than Significant

Impact HYD-6: The Project would not place housing within the 100-year flood plain and structures within the 100-year flood plain would be elevated (Criteria g and h). (Less than Significant)

According to FEMA FIRM maps (2012), the westerly portion of the Project site is located within Zone AE with a base flood elevation of 10 feet NAVD88, which is considered the 100-year special flood hazard zone. The Project does not include housing. The proposed non-residential construction could be exposed to flooding hazards if not designed appropriately. The City of Redwood City's Municipal Code, Chapter 41 Floodplain Management, requires that uses vulnerable to floods be protected against flood damage at the time of initial construction. The code requires that lowest floor of structures be at or above the 100-year base flood elevation with a recommendation of an additional 1 foot above base flood elevation. The Project includes adherence with this recommendation and affected structures would be constructed an additional 1 foot above base flood elevation. Upon completion of the structure, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor, and

verified by the City's Building Inspector to be properly elevated, with certification and verification provided to the Floodplain Administrator. Grading activities associated with the Project would include raising the level of finished floor elevations at least one foot above the current FEMA base flood elevation of 10 feet NAVD88 plus an additional three feet to accommodate anticipated future sea level rise, i.e. total fill increase of four feet, to at least 14 feet NAVD88. Therefore, with the proposed grading and finished floor elevations, which would increase elevations above flood hazard levels in accordance with the minimum standards of Municipal Code requirements and accommodating future sea level rise increases, the Project would have less than significant impact related to development within the 100-year flood plain.

Mitigation: None Required

4.8.6 Cumulative Impacts

Impact HYD-1.CU: The Project, combined with cumulative development in the vicinity of the Project site, would not result in significant cumulative impacts to hydrology and water quality. (Less than Significant)

Implementation of the Project, together with past present and other reasonably foreseeable future projects in the vicinity could cumulatively increase stormwater runoff and pollutant loading to the Bay. The Project and other current and future projects in the vicinity would be required to comply with current construction, drainage and grading requirements intended to control runoff and regulate water quality at each site. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. The Project and other future development projects in Redwood City also would be required to comply with City of Redwood City ordinances regarding water quality including MS4 NPDES permitting requirements. Therefore, the effect of the Project on water quality and hydrology, in combination with other cumulative projects, would not be significant.

Implementation of the Project, together with past present and other reasonably foreseeable future projects in the vicinity, could also expose people and/or property to flooding from a 100-year event and sea level rise. These effects could occur through increases in stormwater runoff volumes that overwhelm drainage infrastructure or during high tide in a 100-year storm event along with sea level rise in the Bay. The Project and other future projects in the vicinity would be required to comply with flood control requirements intended to provide flood protection. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. The Project and future development projects in Redwood City also would be required to comply with San Mateo County and City of Redwood City flood control requirements. As discussed above, the Project itself would involve structural measures designed to convey stormwater flows through improvements to existing infrastructure to ensure adequate capacity at high tides in a 100-year storm event combined with sea level rise. Therefore, the Project, in combination with other cumulative projects, would not result in a significant cumulative impact to people and/or property

from a 100-year event in combination with sea level rise. The Project would have a less than cumulatively considerable impact, and cumulative effects, therefore, would be less than significant.

Mitigation: None Required

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4.9 Land Use and Planning

This section addresses the physical aspects of land use and the regulatory planning framework that guides future development of the Harbor View Project. The discussion focuses on the land use and planning implications of the proposed Project, which seeks amendments to the General Plan and Zoning Map and Zoning Ordinance. Existing land uses in and around the Project site are described in Chapter 3, *Project Description,* and supplemented in this section as needed to provide a comprehensive land use setting. This section also includes a list of applicable City of Redwood City General Plan policies applicable to land use, and a discussion of any conflicts between the proposed Project and the adopted General Plan and other applicable plans and policies pertaining to physical land use and planning consideration factors.

4.9.1 Environmental Setting

Regional and Local Setting and Boundaries

The City of Redwood City is located in eastern San Mateo County, adjacent to the San Francisco Bay. Redwood City sits along Highway 101, approximately five miles west of the cities of Menlo Park and Palo Alto (See Figure 3-1, *Location and Regional Context*).[1]

Project Site

The Project site is located in the "Redwood Creek/Harbor Center" neighborhood established in the General Plan. The Project site is south of Blomquist Street, east of the new San Mateo County Correctional Center and railroad tracks, north of Highway 101, and west of Old Seaport Boulevard (see Figure 3-3, *Project Site*; and Figure 3-4, *Illustrative Site Plan and Surroundings*).

Existing Uses

Project Site

Summarizing from section 3.3.1 in Chapter 3, the majority of the Project site is vacant and includes a construction office that fronts Blomquist Street.[2] Previous uses include the Malibu Golf and Grand Prix facilities, fueling station and building and lumber supply businesses, all of which were recently purchased by the Project sponsor and have since ceased operation.

Circulation

Also depicted in Figure 3-4, vehicular access to the Project area and site is primarily provided from Blomquist Street; Old Seaport Boulevard from Highway 101 and Seaport Boulevard, and from the Maple Street overcrossing of Highway 101 from the area of Downtown Redwood City. Blomquist Street and Maple Street form the existing roadway framework.

[1] Highway 101 is considered the southern boundary of the Project site, and therefore is referenced as running east-west.

[2] Operations on the Project site ceased after publication of the NOP for this EIR in January 2018.

Pedestrian and bicycle facilities are intermittent around the Project vicinity. Seaport Boulevard has a shared-use pedestrian and bicycle path north of Blomquist Street, and there is marked crosswalk at that intersection. A portion of Blomquist Street has sidewalks (south side) and bike lanes (both sides), between Maple and almost to Seaport Boulevard. Pedestrian and bike access also exists on Maple Street, west of the Project site. Existing facilities are illustrated in Figure 4.14-4 in Section 4.14, *Transportation and Traffic*.

Uses Adjacent to the Project Site

Summarizing from section 3.3.2 in Chapter 3, and captured in Figure 3-3, existing land uses surrounding the Project site

- ***East:*** Immediately east is an active rail line that runs parallel to Seaport Boulevard; open property owned by Pacific, Gas & Electric (PG&E) (between the Old Seaport extension and the Highway 101 eastbound on-ramp); further east, across Seaport Boulevard, are the Cargill salt evaporation ponds.
- ***North*****:** The Graniterock & Peninsula Building Materials and similar building materials business exist immediately north of Blomquist Street from the Project site.
- ***West:*** Directly west of the Project site is a railroad spur that extends across Blomquist Street, and the recently constructed County Correctional Center on Maple Street. The area west to Redwood Creek (approximately 1,500 feet west of the Project site) is a mix of unimproved open space, outdoor storage, marina, and wetlands that characterize the "Redwood Creek/Harbor Center" waterfront neighborhood designated in the General Plan. Recently (July 2018), the City certified an EIR and approved the 1548 Maple Street residential project located approximately 1,000-feet west of the Project site—between Maple Street, Redwood Creek, and the future extension of Blomquist Street.
- ***South:*** South of Highway 101 to Veterans Boulevard is a mix of commercial, retail, light industrial, automotive sales and service uses, beyond which is the Downtown area of Redwood City.

Broader Vicinity

Vicinity land uses include a mix of open space, commercial, and light and heavy industrial uses, as well as residential uses primarily west of Redwood Creek. As shown in Figures 3-2, *Project Site and Vicinity*, and Figure 3-3:

- ***Further North*****:** Approximately 1,500 feet north of the Project site are open space, marshlands, Steinberger Slough and the undeveloped area known as the "Ferrari Property." One-half mile north along Seaport Boulevard is the Seaport Centre commercial office complex that predominately includes research and development (R&D) uses. Approximately 1.0 mile further on Seaport Boulevard are commercial uses on the Port of Redwood City property that include the Seaport Conference Center, waterfront public access and viewing areas, picnic areas, a fishing pier, a municipal small-boat marina, the Spinnaker Sailing School, Sequoia Yacht Club, dry boat storage facilities, and parking.

  Port of Redwood City maritime and industrial uses are approximately 1.5 miles north of the Project site. The Port of Redwood City is the only deep water port on San Francisco Bay south of San Francisco.

- ***Further North/Northwest*:** Toward San Francisco Bay are open spaces, including Bair Island National Wildlife Refuge and approximately 30,000 acres of saltwater marshes, mudflats, and vernal pool habitats that make up the Don Edwards San Francisco Bay Wildlife Refuge.
- ***Further West*:** Across Redwood Creek area are residential condominium developments, commercial, industrial, and maritime uses, including Bair Island Marina.

4.9.2 Regulatory Setting

Redwood City General Plan

Planning Neighborhoods / Urban Centers

The General Plan loosely delineates the various planning neighborhoods, referred to as "Urban Form Centers," in General Plan Figure BE-5.

Redwood Creek/Harbor Center

The Redwood City General Plan includes plans, policies, programs, and descriptive contents that indicate the general framework and direction the City intends to pursue regarding future land use. With its adoption of the General Plan in 2010, the City Council adopted policies and programs for the City's Inner Harbor area that encourage a mix of uses while enhancing the waterfront environment. Specifically, the General Plan calls for development of a master plan for the "Redwood Creek/Harbor Center" neighborhood as a step toward achieving that goal.

Within its vision for the master plan, the General Plan states that the area will "strengthen the east/west connection from Downtown to the San Francisco Bay, and create a new destination for residents and visitors to Redwood City."[3] The City's implementation of the General Plan's call for development of a master plan was its preparation of the *Draft Inner Harbor Specific Plan* and corresponding *Draft Inner Harbor Specific Plan and Harbor View Project EIR* in 2015 ("2015 Draft EIR"). However, the City did not ultimately adopt a final Plan or prepare a Final EIR for certification.

Port - Industrial Center

The Project site exists where the "Redwood Creek/Harbor Center" and the "Port Industrial Center" neighborhoods meet, and appears largely within the latter—just west of Seaport Boulevard. Relevant aspects of the Port Industrial Center regarding the proposed Project include policies that emphasize "the value provided by the Port and focus on retention; providing for efficient use of land to support the Port...and minimizing potential land use conflicts as appropriate."

[3] The General Plan established Highway 101 as running north-south, with the Bay being west and Downtown Redwood City being west. Consistent with the currently proposed Harbor View Project exhibits, Highway 101 is referenced as running east-west in this Draft EIR.

Existing General Plan Land Use Designations

The existing General Plan land use designations on the Project site are describe below. (Also see Table 4.9-2 further in this section.)

Industrial – Light (LI)

The "Industrial – Light (LI)" designation applies to the majority (94 percent) of the 27.08-acre Project site. This designation allows for up to 0.75 floor area ratio (FAR). It is intended to create areas of relatively low-intensity industrial uses. LI activities do not involve substantial truck traffic or outdoor fabrication or assembly, do not produce odors, generally operate only during typical weekday hours, and do not involve any operations normally considered hazardous within an urban environment. Prohibited uses within this designation include commercial warehousing, trucking- and transportation-related businesses, and heavy manufacturing. R&D uses could locate in the area designated for IL land uses.

The LI designation also applies to adjacent areas west and north of the Project site.

Industrial – Port Related (IP)

The "Industrial – Port Related" designation applies to 4.3 acres (6 percent) at the northeast-most corner of the Project site, at the intersection of Blomquist Street and Seaport Boulevard. This designation supports heavy industrial activities associated with the nearby Port, including loading/unloading, storage, bulk cargo transfer, rail facilities, and maritime uses.

The IP designation also applies to the areas north and east of the Project site.

Maximum General Plan Growth Capacity

Under the existing IL General Plan designation, theoretical development on the 27.08-acre Project site could accommodate approximately 740,000 square feet of light industry and/or R&D uses, factoring in the allowable 0.75 FAR and the three-story building height limit.

Land Use Policies

The Redwood City General Plan includes numerous land use policies relevant to the proposed Project, adopted for the purpose of avoiding or mitigating an environmental effect. To avoid repetition in this section, the land use policies are included in the following **Table 4.9-1, Consistency with Applicable General Plan Land Use Policies and Other Applicable Regulations or Plans**, which includes the comprehensive list of General Plan land use policies relevant to the Project and intended to reduce environmental effects. The table identifies whether the Project is consistent or in conflict with the General Plan land use policies and other applicable regulations. Where mitigation measures are identified in this EIR to allow consistency with certain General Plan land use policies, those instances are noted.

TABLE 4.9-1
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Aesthetics	
• Policy BE-1.9: Carefully consider new shade, shadow, light, and glare effects from proposed development projects and comprehensive plans.	Consistent
• Policy BE-3.2: Encourage new development to create direct and clear visual relationships between residences and public streets, while minimizing driveways, parking areas, and garage doors in front yard spaces.	Consistent
• 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.	Consistent
• 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.	Consistent
Air Quality	
• Program PS-1: Air Quality Standards. Use methodologies and practices set by the U.S. Environmental Protection Agency, CARB, and the BAAQMD that measure air quality at emission sources.	Consistent
• Policy PS-1.2: Minimize vehicle emissions by reducing automobile use and encouraging alternative means of transportation.	Consistent, with implementation of mitigation measures to minimize emissions to the greatest extent feasible, but not to less than significant.
• Policy PS-1.5: Require projects that generate potentially significant levels of air pollutants to incorporate the most effective air quality mitigation into project design, as feasible.	Consistent, with implementation of mitigation measures to minimize emissions to the greatest extent feasible, but not to less than significant.
• Policy PS-2.1: Consider surrounding land uses when locating sensitive receptors such as schools, hospitals, and residential uses so they are not unreasonably exposed to uses that generate pollutants considered detrimental to human health.	Consistent
• Policy PS-2.4: Avoid placing sensitive uses within 500 feet–or other distance deemed to be appropriate based on project-specific health risk assessment data–of the Port of Redwood City, related heavy industrial areas, and any roadways serving Port uses.	Consistent
• Policy PS-3.1: 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.	Consistent
• Policy PS-3.3: Implement policies of the Built Environment Element that provide for compact, urban-style forms of development and complete streets and neighborhoods to reduce vehicle emissions by placing residents closer to jobs and services and providing alternative modes of transportation.	Consistent
• Policy PS-3.4: Implement the policies of the Built Environment Element that promote transportation mode shifts away from private automobile travel.	Consistent
• Program PS-4: Air Pollution Control Plans. Require developers to implement appropriate air pollution control plans to reduce dust and exhaust emissions from construction equipment.	Consistent, with implementation of mitigation measures to minimize emissions to the greatest extent feasible, but not to less than significant.
• Program PS-5: Energy Efficiency Standards. Require new buildings and building additions to meet Green Building standards, consistent with the Green Building Ordinance.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Biological Resources	
• Policy NR-6.5: Take steps to reduce urban runoff into creeks and the Bay.	Consistent
• 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.	Consistent
• Policy NR-8.2: Preserve and create contiguous wildlife habitat and movement corridors.	Consistent, with mitigation measures to reduced impacts to less than significant.
• Policy NR-9.1: Preserve, maintain, and expand the number of trees in Redwood City's urban forest, on both public and private property.	Consistent, with mitigation measures to reduced impacts to less than significant.
• Policy NR-9.2: Require new trees to be planted and/or plant new trees in sufficient number, as identified on a site by site basis, on sites designated as sensitive receptors (i.e. schools or hospitals) that are in close proximity to industry, heavily traveled freeways and roads, and other similar pollution sources in order to mitigate air pollution.	Consistent
• Policy NR-9.3: Select appropriate trees for Redwood City, focusing especially on native and landmark tree types.	Consistent
Cultural and Paleontological Resources	
• Policy BE-37.1: Enhance, restore, preserve, and protect, as appropriate, historic resources throughout the city.	Consistent
• 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.	Consistent
• Policy BE-37.3: Encourage the retention and/or adaptive reuse of historic residential, commercial, and industrial buildings.	Consistent
• 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.	Consistent
Geology and Soils	
• 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.	Consistent
• 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.	Consistent
• Program PS-23: Seismic Safety Addressed in CEQA. Require environmental documents prepared in connection with CEQA to address seismic safety issues, and provide adequate mitigation for existing and potential hazards.	Consistent
• Program PS-24: Geotechnical Analysis. Require a geotechnical analysis for construction in areas with potential geological hazards, and implement appropriate mitigation recommendations.	Consistent
• Program PS-25: International Building Code. Continue to implement the International Building Code seismic safety standards for construction of new buildings, and update the City's codes as needed to respond to new information, standards, and technology.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Greenhouse Gases	
• Policy PS-1.3: Pursue efforts to reduce air pollution and greenhouse gas emissions by promoting the use of renewable energy (e.g., solar, wind, and hydroelectric power), and implement effective energy conservation and efficiency measures.	Consistent
• Policy PS-4.4: Promote urban forestation and other ecosystems that offer significant carbon mitigation potential.	Consistent
• Policy PS-5.2: Strive to reduce per capita greenhouse gas emissions and total municipal greenhouse gas emissions to 15 percent below 2005 levels by 2020.	Consistent
• Policy PS-5.3: Reduce greenhouse gas emissions and adapt to climate change with efforts in the following areas. Major mitigation and adaptation strategies will include: – Energy: Incentivize renewable energy installation, facilitate green technology and business, and reduce community-wide energy consumption. – Land Use: Encourage investment and development in Downtown, transit-oriented development, compact development, infill development, and a mix of uses. Discourage development on land vulnerable to flooding from sea level rise where potential impacts cannot be adequately addressed. – Transportation: Enhance bicycling and walking infrastructure, and support public transit, including Caltrain, rapid rail, streetcars, and public bus service. – Buildings: Educate developers regarding the City's Green Building Ordinance, and develop an assessment of green building techniques as a formal stage of City design review. Consider strategies to encourage energy and water conservation retrofits in existing buildings. Adaptation strategies will also include increased water efficiency in buildings. – Waste: Increase composting, recycling, and efforts to reduce waste generation, focusing especially on large commercial and industrial waste producers. – Ecology: Plant trees and more vegetation, and endeavor to preserve open space. Major climate adaptation strategies will include native and drought-resistant planting and preservation of open space buffers near floodplains that may be affected by sea level rise. – Communication and Programs: Develop or support energy- or climate change-themed publications and workshops, facilitate energy audits for residents, and establish partnerships to reduce greenhouse gas emissions	Consistent
• Policy NR-4.2: Promote the use of renewable energy and support efforts to develop small scale, distributed energy (e.g., solar power, wind, cogeneration, and biomass) to reduce the amount of electricity drawn from the regional power grid, while providing Redwood City with a greater degree of energy self-sufficiency.	Consistent
• Policy NR-4.4: Pursue efforts to reduce energy consumption through appropriate energy conservation and efficiency measures throughout all segments of the community.	Consistent
• Policy NR-4.5: Conserve energy by promoting efficient and cost-effective lighting that reduces glare and light pollution.	Consistent
Hazards and Hazardous Materials	
• 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.	Consistent
• Policy PS-8.4: Encourage the use of green building practices to reduce potentially hazardous materials in construction materials.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Hydrology	
• Policy BE-24.11: Consider the impacts of global warming, such as rising sea levels and floodplain areas, when reviewing plans for new development.	Consistent
• Program BE-155: NPDES. Continue to comply with all provisions of the National Pollutant Discharge 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.	Consistent
• Policy NR-5.2: Limit construction activities to protect water quality in creeks and streams.	Consistent
• 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.	Consistent
• Policy PS-7.2: Improve the drainage system's level of service to minimize storm flooding.	Consistent
Land Use and Planning	
• Policy BE-1.4: Require that buildings and properties be designed to ensure compatibility within and provide interfaces between Neighborhoods, Centers, and Corridors.	Consistent
• Policy BE-1.6: Require that new large-scale projects are developed with an interconnected pattern of small blocks to induce walking and create walkable neighborhoods and to maximize connections between neighborhoods. 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.	Consistent
• Policy BE-1.7: Require that new large-scale projects consist of buildings oriented to public streets, rather than private drives, walkways, and parking lots.	Consistent
• 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.	Consistent
• Policy BE-10.3: Ensure that development in Waterfront Neighborhoods considers and plans for potential impacts associated with climate change and sea level rise.	Consistent
• 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.	Consistent
• 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. (Also *Transportation and Traffic*)	Consistent
• 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.	Consistent
• 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.	Consistent
• Program BE-18: Redwood Creek/Harbor Master Plan. Develop a Master Plan for the areas surrounding Redwood Creek, linking the harbor area, Redwood Creek, and Downtown Redwood City. The Master Plan should create a "destination" harbor center. It should address connections between Downtown and the Bay, and focus on placemaking, "destination" land uses, design, incentives, trails and connections, and necessary infrastructure improvements. The Master Plan should attempt to redress the barrier and disconnection created by U.S. 101 between Downtown and the Bay. It should attempt to reinforce an east-west focus rather than north-south. The Master Plan should consider creating bridges across the creek that may be parallel but separate from Blomquist extension to further enhance trails, open space accessibility, and connectivity.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Land Use and Planning (cont.)	
• Policy BE-19.4: Encourage Employment Centers to incorporate accessory uses such as public open space and/or trails, transit amenities, child care facilities, and supportive retail uses based on the size and location of the development.	Consistent
• Policy BE-23.10: Allow development projects to exceed maximum densities if the development is within a designated planning area (such as certain precise plans) and the project demonstrates some or all of the following features that provide significant community benefits: – Superior design and integration of a mix of uses – Incorporation of affordable housing – Incorporation of public or community facilities – Transportation demand management – Innovative use of shared parking – Efficient and innovative use of infrastructure and renewable resources – Supportive of new transit such as streetcars	Consistent
• Policy BC-5.2: complete the Bay Trail through Redwood City. (Also *Transportation and Traffic*)	Consistent
• Policy BC-5.6: Provide access to water-based recreation opportunities in San Francisco Bay and along bayfront lands. (Also *Public Services and Recreation*)	Consistent
• 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\	Consistent
Noise	
• 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.	Consistent
• 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	Consistent
• Policy PS-13.5: Limit the hours of operation at all noise generation sources that are adjacent to noise sensitive areas, wherever practical.	Consistent
• 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.	Consistent
• Policy PS-13.8: Implement appropriate standard construction noise controls for all construction projects.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Noise (cont.)	
• 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.	Consistent
• Program PS-63: Enforce standard construction noise controls. Enforce standard construction noise controls such as: – Limit construction to the hours of 8:00 AM to 5:00 PM on weekdays, and 9:00 AM to 5:00 PM on Saturdays, with no noise generating construction on Sundays or holidays. – Control noise from construction workers' radios to the point where they are not audible at existing residences that border the project site. – Equip all internal combustion engine-driven equipment with mufflers that are in good condition and appropriate for the equipment. – Utilize quiet models of air compressors and other stationary noise sources where technology exists. – Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.	Consistent, with mitigation measures to reduced impacts to less than significant.
• 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.	Consistent
• Policy NR-3.1: Require new development to demonstrate that adequate water is available before project approval.	Consistent
Population, Housing, and Employment	
• Policy BE-10.2 (*See Land Use and Planning*)	Consistent
Public Services	
• Policy BC-1.3: Enhance street corridors, parkways, and public property between buildings to serve as functional recreation and green space.	Consistent
• Policy BC-1.5: Consider all opportunities to create and acquire lands for parks, community gardens, rooftop gardens, and community gathering places.	Consistent
• 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.	Consistent
• Policy BC-5.6: (See *Land Use and Planning)*	
Utilities	
• 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.	Consistent
• 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.	Consistent
• 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.	Consistent
• 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.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Utilities (cont.)	
• Policy BE-43.2: Require new buildings, particularly taller buildings, to be designed with sufficient space to accommodate wireless communications equipment.	Consistent
• Policy BE-44.2: Continue to require the placement of utilities underground with new development.	Consistent
• Policy BE-45.1: Meet or exceed State mandates regarding the diversion of waste from landfills.	Consistent
• Policy BE-45.2: Encourage recycling, composting, and source reduction by residential and non-residential sources in Redwood City.	Consistent
• Policy BE-45.3: Promote green building practices with respect to recycling material from building demolition and using recycled building materials in new construction.	Consistent
Transportation and Traffic	
• Program BE-7: Access to Residential Waterfront Neighborhoods. Continue to pursue an extension of Blomquist Street to link the Bayfront over Redwood Creek.	Consistent
• Policy BE-11.1 (See *Land Use and Planning)*	
• Policy BE-11.5 (See *Land Use and Planning)*	
• Policy BE-25.1: Accommodate and encourage alternative transportation modes to achieve Redwood City's mobility goals and reduce vehicle trip generation and vehicle miles traveled (VMT).	Consistent
• Policy BE-25.3: Support using the concept of complete streets to design, construct, operate, and maintain City and private streets to enable safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists, and transit users of all ages, abilities, and preferences. Use the complete streets concept to better link the Port, Seaport Centre, Pacific Shores, and other employment centers with Downtown and other nearby areas.	Consistent
• Policy BE-25.4: Consider impacts on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects.	Consistent, with mitigation measures to address significant and unavoidable impacts where feasible.
• Policy BE-25.5: Continue to implement Pedestrian Enhanced Designs (PEDs), especially on streets with projected excess vehicle capacity, to reduce either the number of travel lanes or the roadway width, and use the available public right-of-way to provide wider sidewalks, bicycle lanes, transit amenities, or landscaping.	Consistent
• Policy BE-26.6: Require new development projects to provide pedestrian and bicycle/electric scooter facilities that connect to existing and planned pedestrian and bicycle facilities; and require large parking facilities to accommodate pedestrian, bicycle, and electric scooter circulation.	Consistent
• Policy BE-26.14: Support completion of the pedestrian network by providing sidewalks or paths on at least one side of the street (preferably both sides where feasible) where they are missing and feasible. Crosswalks and sidewalks shall be universally accessible and designed for people of all abilities, wherever feasible.	Consistent
• Policy BE-26.16: Encourage pedestrian activity by installing, maintaining, and where appropriate, enhancing existing crosswalks at both mid-block locations and all approaches of major intersections where feasible and where enhanced traffic control devices or roadway amenities would improve pedestrian access and safety.	Consistent
• Policy BE-27.8: Consult with employers and transit providers to establish and maintain shuttle service serving major vehicle trip generating destinations in the City.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Transportation and Traffic (cont.)	
• Policy BE-31.5: Ensure that TDM programs initiated by private parties reduce projected traffic impacts.	Consistent, with mitigation measures to address significant and unavoidable impacts where feasible.
• Policy BE-31.7: Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that discourages non-automobile travel modes usage.	Consistent
• Policy BE-31.9: Consider reducing parking requirements for mixed-use developments and for developments providing shared parking or a comprehensive TDM program, or developments located near major transit hubs.	Consistent
• Policy BE-31.10: Encourage private property owners to share their underutilized parking with the general public and/or other adjacent private developments.	Consistent
• Program BE-50: Off-Street Loading Requirements. As part of the project development review process, ensure that adequate off-street loading areas in new large commercial, industrial, and residential developments are provided, and that they do not conflict with pedestrian, bicycle, or transit access and circulation.	Consistent
Program BE-52: Parking Demand Analysis. As part of the entitlement process, require large developments to complete a parking demand analysis that accounts for shared parking, TDM programs, and parking pricing to determine the appropriate parking supply. Encourage the use of parking reserve in landscaping concept (i.e., landscaping that can be converted to parking in the future if necessary) to ensure that excessive parking is not provided.	Inconsistent: Use of the zoning code's parking requirement appears to oversupply, contrary to the goals for alternative transportation/GHG reductions, etc.
• Policy BC-5.2 (See *Land Use and Planning*)	
• Policy BC-5.3: Provide connection between regional trails, county trails, and other jurisdictions' trail systems.	Consistent
• Policy BC-10.4: Look for innovative ways to involve employers, congregations, and developers in the provision of child care services and facilities, including possible impact fees.	Consistent
Multiple Factors	
• 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.	Consistent
– 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.	Consistent
– 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.	Consistent
– New development must plan for access to public transportation, including the potential streetcar system, transportation hub, and ferry terminal, as appropriate.	Consistent
– Limit new development within the flood plain or ensure new development incorporates extra precautions into the site and building design to account for flood plain location.	Consistent

TABLE 4.9-1 (Continued)
CONSISTENCY WITH APPLICABLE GENERAL PLAN LAND USE POLICIES AND OTHER APPLICABLE REGULATIONS OR PLANS

General Plan Policy or Program	Conflict / Consistent
Multiple Factors (cont.)	
– 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.	Consistent
– 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.	Consistent
– Minimize direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.	Consistent
– Uses proposed must clearly be compatible with surrounding established and planned uses.	Consistent
– Development must support the City's vision for the district or area in which it is proposed to be located.	Consistent
– 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.	Consistent
– 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.	Consistent
– 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.	Consistent

Redwood City Zoning Ordinance

The Redwood City Zoning Ordinance (Zoning Ordinance) consists of a zoning map that delineates the boundaries of zoning designations within the City and regulations that govern the use of land and placement of buildings and improvements within the various classes of districts. The purpose of the Zoning Ordinance is to protect the health, safety, peace, morals, comfort, convenience, and general welfare of the people of Redwood City, and to serve as an instrument for the effectuation of the General Plan.

Existing Zoning Districts

The existing Zoning districts on the Project site are described below. (Also see Table 4.9-2 further in this section.)

Industrial Restricted (IR)

The "Industrial – Restricted (IR)" zoning district designation applies to the majority (94 percent) of the 27.08-acre Project site. The IR zone permits a range of industrial uses, from warehouses and laboratories, to manufacturing businesses and distribution centers.

The IR zoning district designation also applies to adjacent areas west and north of the Project site.

General Industrial (GI)

The "General Industrial (GI)" district designation applies to 4.3 acres (6 percent) at the northeast-most corner of the Project site, at the intersection of Blomquist Street and Seaport Boulevard. The GI zone allows for a variety of manufacturing, warehousing, and research uses.

The GI zoning district designation also applies to the areas north and east of the Project site

Redwood City Tree Preservation Ordinance

As previously presented in Section 4.3, *Biological Resources,* the City of Redwood City's Tree Preservation Ordinance protects significant trees and defines "protected trees" (Municipal Code Chapter 35). The Code specifies that, unless the City Council grants an exclusion, before any tree in Redwood City is cut, moved, or removed, an applicant must obtain a permit from the Parks and Recreation Director. In addition, the Parks and Recreation Commission may declare a tree a "heritage tree" if the tree is healthy and has adapted well to the climatic conditions of the area, is visible from a public right-of-way, and either (a) has historic significance, (b) is indigenous to the area, or (c) is one of a group that is dependent on the others for survival. Redwood City Municipal Code also protects trees within the public right-of-way (Chapter 29, Article VI), requiring a permit from the Park Superintendent of Redwood City for removal, the granting of which depends on specific conditions and shall be time limited.

San Carlos Airport Land Use Plan

The *San Carlos Airport Land Use Plan* (ALUP), which is a chapter in the San Mateo County ALUP, establishes airport noise and land use compatibility standards for development in the airport vicinity of San Carlos Airport and its takeoff and approach zones. San Carlos Airport is located within the neighboring city of San Carlos and is owned and operated by the County of San Mateo. The City/County Association of Governments of San Mateo County (C/CAG) Board of Directors serves as the State-mandated airport land use commission for the county. The Board established the C/CAG Airport Land Use Committee (ALUC) to review proposed land use policy actions and related development in jurisdictions surrounding the three airports in the county, including the San Carlos facility. The ALUC makes recommendations to the C/CAG Board regarding the consistency of proposed land use policy actions and related development with relevant airport/land use compatibility policies and criteria within defined Airport Influence Area (AIA) boundaries for each airport. The City of Redwood City is a member of the ALUC and the C/CAG Board.

The adopted AIA boundary for San Carlos Airport consists of two parts: Area A and Area B. Area A defines a geographic area that is subject to real estate disclosures of potential airport/aircraft impacts. All of Redwood City is located within Area A, including the Project site. Area B defines an area within which, in addition to the real estate disclosure provisions, affected jurisdictions must refer their proposed land use policy actions (including General Plan land use amendments) to the ALUC and to the C/CAG Board for a formal airport/land use compatibility review. The Project Site is no located within Area B. (CCAG, 2015)

Other Regulatory Guidance

Other planning agencies have jurisdictional oversight pertaining to land use-related considerations in all or portions of the Project site and are discussed in detail in other sections of this EIR as they closely relate to policy or regulatory guidance for specific environmental factors. Compliance with each is also noted in Table 4.9-1, with the corresponding applicable General Plan policy(ies):

- San Francisco Bay Regional Water Quality Control Board (SWRQCB).
- San Mateo County Congestion Management Program
- State Emergency Response Plan
- Regional Air Quality Plan (Bay Area 2005 Ozone Strategy) (i.e., 2005 Clean Air Plan)
- BAAQMD Air Toxics Program

4.9.3 Project Baseline

Baseline conditions reflect the condition of the Project site as it existed at the time the Notice of Preparation for the Project was issued on January 12, 2018. The *Environmental Setting* acknowledges any changes that have occurred to the land use baseline since that time, and if that change is reflected in the EIR analysis.

4.9.4 Significance Criteria

Based on CEQA Guidelines Appendix G, a project would have significant adverse impacts to land use and planning if it would:

a) Physically divide an established community;

b) Conflict with any applicable land use plan, policy, or the regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;

c) Conflict with any applicable habitat conservation plan or natural community conservation plan.

Approach to Analysis

This EIR analysis evaluates the general consistency of approval, construction and operation of the Proposed project with applicable land use plans and policies. Pursuant to Section 15125(d) of the CEQA *Guidelines,* inconsistency with an adopted plan, including the General Plan, does not necessarily indicate a significant impact. A general plan contains many policies which may in some cases address different goals, policies, and objectives. In fact, some policies may compete with each other. The information presented in this EIR is intended to allow decision-makers of the proposed Project to decide whether, on balance, the Project is consistent (i.e., in general harmony) with Redwood City General Plan, including the requested amendments to the General Plan land use designation and Zoning Ordinance and map.

Further, this analysis focuses on the effects of physical change. As stated in Section 15358(b) of the CEQA *Guidelines*, "[e]ffects analyzed under CEQA must be related to a physical change." Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) makes explicit the focus on *environmental* policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation . . . *adopted for the purpose of avoiding or mitigating an environmental effect*" (emphasis added). Even a response in the affirmative, however, does not necessarily indicate the project would have a significant effect, unless an adverse physical change would occur. To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed elsewhere in this EIR, in the applicable topic section of Chapter 4. The compatibility of the proposed Project with General Plan policies that do not relate to physical environmental issues will be considered by decision-makers as part of their decision whether to approve or disapprove the Project.

Moreover, a conflict with a policy that exists today, but that is amended to accommodate a proposed Project (as requested with the proposed Project) does not normally constitute a significant effect on the environment under CEQA. That is, should the decision-makers (e.g., the City Planning Commission and City Council) determine that the City's policy framework—the General Plan and Zoning Ordinance— be amended to accommodate the Harbor View Project, the Project would not conflict with applicable City land use plans, policies, or regulations adopted for

the purpose of avoiding or mitigating an environmental effect. In this case, there would be a less-than-significant effect under Criterion b, above, with respect to City policies.

Topics Considered and Determined No Impact

Based on the characteristics of the Project site, it would not result in impacts related to the following criterion. No impact discussion is provided for this topic for the following reasons:

- ***Conflict with any applicable habitat conservation plan or natural community conservation plan*** (Criterion c). The Project is not subject to any habitat conservation plan or natural community conservation plan. Therefore, no impact would occur for the Project.

4.9.5 Impacts of the Project

Impact LU-1: The proposed Project would not result in the physical division of an established community or conflict with adjacent or nearby land uses (Criterion a). (Less than Significant)

Development of the Project would include an approximately 27.08-acre high-tech office campus, incorporating multiple buildings up to seven stories tall and surrounding a central usable landscaped area and a campus wide landscaped promenade with pedestrian and bicycle facilities. The site is bound on the south and east by major roadways: Highway 101 and Old Seaport Boulevard, respectively. Blomquist Street is a major two-lane street that borders the north of the Project site, with the UPRR railroad tracks and the new San Mateo County Jail bordering the west end of the Project site. The Project site sits where the industrial and port-related uses and character transitions to the *Redwood Creek / Harbor Center* neighborhood area characterized by open space, marina, and natural resource areas associated with the nearby Redwood Creek and its tributaries.

Development of the Project in this location would serve as a transition between the industrial port area and the waterfront area. The Project proposes a non-sensitive use (office) with relatively taller buildings (compared to existing buildings nearby) oriented as buffers between the proposed usable landscaped open space areas within the campus and nearby heavy uses (e.g., Graniterock). Benefiting existing and envisioned aspects of the waterfront-related area to the west of the Project site, the Project includes enhanced pedestrian and bicycle connections to the waterfront and Downtown. Therefore, development of the Project would not physically divide any established adjacent areas, and would tend to provide a needed transition and linkage between these two areas. The impact would be less than significant.

Mitigation: None Required

Impact LU-2: The proposed Project would not conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect (Criterion b). (Less than Significant)

The proposed Project, without the requested amendments to the General Plan and Zoning Ordinance, conflicts with land uses and building height allowed under the existing "Industrial – Light (LI)" land use designation that applies to 94 percent of the Project site; the proposal also conflicts with the uses allows with the existing "Industrial – Restricted (IR)" zoning district designation on the same area of the site.

Therefore, the Project Sponsor has requested to amend the General Plan and Zoning Ordinance and Map to accommodate the proposed commercial office campus with buildings up to seven stories tall. Specifically, the Projects entails a General Plan Amendment to establish a "Commercial-Office Professional/Technology (CP)" land use designation, and a Zoning Ordinance and Map Amendment to designate and map a "Commercial Park" (CP) Zoning district for the site. A comparison of the key proposed standards addressed by the proposed amendments is summarized in **Table 4.9-2, Proposed General Plan and Zoning Amendments Summary**.

TABLE 4.9-2
PROPOSED GENERAL PLAN AND ZONING AMENDMENTS SUMMARY

		General Plan			Zoning		
		Existing		Amended	Existing		Amended
	Proposed Project	Industrial – Light (LI)	Industrial – Port (IP)	New Commercial - Office Professional/ Technology (CP)	Industrial – Restricted (IR)	General Industrial (GI)	New Commercial Park (CP)
Project Site Area (acres)	27.08	22.78	4.3	27.08	22.78	4.3	27.08
Primary Land Uses	Commercial Office	Low-Intensity Industrial / R&D	Heavy Industrial / Port related	Professional Offices / Office complexes and campuses	Industrial Warehouse / Manufacturing/ Labs / R&D	Industrial Manufacturing Warehouse / Labs / R&D	Professional Offices / Office complexes and campuses
Maximum Building Stories	7	3 stories	3 stories[b]	8	75 feet	100 feet	8 stories / 100 feet
Maximum FAR for office use[a]	1.0	0.75	0.5	0.8 - 1.0[c]	0.70[d]	0.10[c]	0.8 -1.0[e]

[a] Floor Area Ratio (FAR) is total usable floor area divided by total site area. The FAR of 1.0 is slightly overstated since it is based on larger gross floor area – all of which is not usable. FAR does not include parking uses.
[b] Taller for ancillary buildings may be allowed.
[c] 1.0 assuming FAR bonus provision with waterfront connection.
[d] Office use is a limited accessory use only.
[e] 1.0 assuming FAR bonus provision with access to waterfront and 10 percent of site designated for public use.

Regarding overall General Plan policy considerations, the Project as proposed would be consistent with the General Plan vision for a Redwood Creek/Harbor Center neighborhood that is a vibrant new area with a strong connection between Downtown and the Bay that attracts new residents, businesses, and visitors to the area. Table 4.9-1 includes the comprehensive list of

General Plan policies relevant to the proposed Project. As demonstrated there, the Project does not have a substantial conflict with any plan or policy, including with consideration of mitigation measures identified in this EIR. Table 4.9-1 does identify that the proposed Project's use of standard Zoning requirements for off-street parking could conflict with the General Plan's goals encouraging use of alternative parking (through reduced parking supply), and reduce GHG emission. However, the Project would be responsible for developing and implementing the TDM Plan subject to approval by the City and C/CAG, aimed at vehicle trip reduction.

Taken together, the Project would not conflict with applicable land use plans, policies, or regulations, including those adopted for the purpose of avoiding or mitigation an environmental effect.

Mitigation: None Required

4.9.6 Cumulative Impacts

Impact LU-1.CU: The Project, in combination with cumulative development in the vicinity of the Project site, would not result in cumulative impacts to land use and planning. (Less than Significant)

The cumulative geographic context for land use, plan, and policy considerations for development of the Project consists of the Project site in addition to the surrounding neighborhoods abutting the Project site.

As analyzed throughout this section, development of the Project would not result in a significant land use impact by physically dividing an established community or conflicting with applicable land use plans, policies or regulations—specifically those adopted for the purpose of avoiding or mitigating an environmental effect. In fact, the Project would create an appropriate transition between two neighborhoods that warrant buffering, and provide improved bicycle and pedestrian connections to other area – including the waterfront and Downtown. Therefore, the Project would not combine with, or add to, any potential adverse land use impacts that may be associated with other cumulative development. Similarly, because development of the Project would not result in a conflict with a land use plan, policy or regulation in manner that could result in a significant environmental effect, whether other present or future development would have those conflicts, the effect would not combine to create a cumulative conflict.

The Project would increase the intensity and change the land use on the Project site, as might other cumulative development projects throughout the City. However, since other major developments are not anticipated adjacent to the Project site, they would not combine with the Project to result in cumulative impacts related to physical division of an established community.

In addition, all other cumulative development has been, or will be, subject to development guidance in the General Plan, Zoning Ordinance, and other applicable and adopted codes, plans, and regulations to avoid conflicts and mitigate environmental effects. Based on the information in

this land use section, and for the reasons summarized above, development of the Project would not contribute to any significant adverse cumulative land use impacts when considered together with other cumulative development.

Overall, the development of the Project, combined with cumulative development in the area, would not result in a cumulatively significant impact with respect to conflicts with land use, plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation: None Required

References – Land Use and Planning

California State Lands Commission (CSLC), 2014. Correspondence from CSLC (Sheri Pemberton, Chief, External Affairs) to the City of Redwood City (Bill Ekern, Assistant City Manager, dated August 7, 2014.

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Port of Redwood City (2010). *Wharves 1 and 2 Redevelopment Project Draft Environmental Impact Report*, prepared by ESA. March 2010.

4.10 Noise

This section analyzes the potential noise impacts of development of the Project. Discussed are the environmental and regulatory setting of noise and vibration, the significance criteria used for determining environmental impacts, and potential construction and operational impacts of implementation of the Project, including on existing sensitive receptors. Mitigation measures are identified to reduce potentially significant impacts. Background information on environmental acoustics, including definitions of terms commonly used in noise and vibration analysis, is also provided.

4.10.1 Environmental Setting

Noise Background

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) makes community noise constantly variable throughout a day.

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, the speed that it travels, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound, and the decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated. **Table 4.10-1** shows some representative noise sources and their corresponding noise levels in dBA (HUD, 2009).

TABLE 4.10-1
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT

Examples of Common, Easily Recognized Sounds	Decibels (dBA) at 50 feet	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain (Discomfort)	130	
Threshold of Feeling – Hard Rock Band	120	
Accelerating Motorcycle (at a few feet away)	110	
Loud Horn (at 10 feet away)	100	Very Loud
Noisy Urban Street	90	
Noisy Factory	85	
School Cafeteria with Untreated Surfaces	80	Loud
Near Freeway Auto Traffic	60	Moderate
Average Office	50	
Soft Radio Music in Apartment	40	Faint
Average Residence Without Stereo Playing	30	
Average Whisper	20	Very Faint
Rustle of Leaves in Wind	10	
Human Breathing	5	
Threshold of Audibility	0	

NOTE: Continuous exposure above 85 dBA is likely to degrade the hearing of most people. Range of speech is 50 to 70 dBA.

SOURCE: United States Department of Housing and Urban Development, *The Noise Guidebook*, 2009.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. Other frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

DNL: The day-night noise level (DNL; also referred to as L_{dn}) or the energy average of the A-weighted sound levels occurring during a 24-hour period and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- **Interference with activities such as speech, sleep, and learning** – The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Interior residential standards for multi-family dwellings are set by the State of California at 45 DNL. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses.
- **Subjective effects of annoyance, nuisance, and dissatisfaction** – Based on attitude surveys used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas, the main causes for annoyance are interference with speech, radio and television, house vibrations, and interference with sleep and rest. The DNL as a measure has been found to provide a valid correlation of noise level and the percentage of people annoyed. Three aspects of community noise are most important in determining subjective response – the level of sound, the frequency composition or spectrum of the sound, and the variation of sound level with time.
- **Physiological effects such as hearing loss or sudden startling** – While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

Environmental noise typically produces effects in the first two categories. Workers at industrial plants often experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way the new noise compares to the existing noise levels to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013):

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. A ruler is a linear scale: it has marks on it corresponding to equal quantities of distance.

One way of expressing this is to say that the ratio of successive intervals is equal to one. A logarithmic scale is different in that the ratio of successive intervals is not equal to one. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather they combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases with distance from the source. This basic attenuation rate is referred to as the geometric spreading loss. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6.0 dBA per doubling of distance from the source. In many cases, additional noise attenuation occurs due to ground absorption, reflective wave canceling, and physical barriers and/or topography that block the line of sight between the source and receiver. These factors are collectively referred to as excess ground attenuation.

Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} n if the windows are closed.

Trees and vegetation, buildings, and barriers reduce the noise level that would otherwise occur at a given receptor distance. However, for a vegetative strip to have a noticeable effect on noise levels, it must be dense and wide. For example, a stand of trees must be at least 100 feet wide and dense enough to completely obstruct a visual path to the source to attenuate noise by five dB (Caltrans,2009). A row of structures can shield more distant receivers depending upon the size and spacing of the intervening structures and site geometry. Generally, for an average residential area where the first row of houses covers at least 40 percent of the total area, the reduction provided by the first row of houses is approximately 3.0 dB and 1.5 dB for each additional row.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal and, as velocity, is discussed in terms of inches per second. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is the average of the squared amplitude of the signal. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration (FTA, 2006).

Existing Ambient Noise Environment

The existing noise environment of the Project vicinity is dominated by the presence of U.S. Highway 101 to the south and the operations of the Graniterock concrete and asphalt processing plant located to the east. Other noise sources in the area include truck traffic on Blomquist Street and Seaport Boulevard and operations of the freight rail line adjacent to Seaport Boulevard. Although the portion of the Inner Harbor area west of Maple Street is within the Airport Influence Area of the San Carlos Airport (CCAG, 2015), no portion of the Project site lies within the lowest published noise contour (a community noise exposure level of 55 decibels) (CCAG 2015) and aircraft noise is not a substantial contributor to existing noise levels in the area.

Noise from vehicle traffic on Highway 101 is a fairly constant noise source with subtle fluctuations during off-peak hours. Noise generated by the Graniterock facility includes substantial truck traffic along Blomquist Street, loading of rail cars on the plant western boundary, and nighttime operation of freight trains on the rail spur.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to noise levels than others due to the duration and nature of time people spend at these uses. In general, residences are considered most sensitive to noise as people spend extended period of time in them including the nighttime hours. Therefore, noise impacts to rest and relaxation, sleep, and communication are highest at residential uses. Schools, hotels, hospitals, nursing homes, and recreational uses are also considered to be more sensitive to noise as activities at these land uses involve rest and recovery, relaxation and concentration, and increased noise levels tend to disrupt such activities. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate, are also sensitive to noise but due to the limited time people spend at these uses, impacts are usually tolerable. Commercial and industrial uses are considered the least noise-sensitive.

There are no residential uses in the immediate vicinity of the Project site. The residential receptors nearest to the Project site are the condominium developments (One Marina and Marina Point) located approximately 1,550 feet west of the Project site, across Redwood Creek. The Maple Street Correctional Center is located adjacent to and approximately 100 feet west of the Project site. Therefore, the inmates housed within this facility would be considered the most impacted sensitive receptors from Project construction and operational noise.

4.10.2 Regulatory Setting

Federal, State, and local agencies regulate different aspects of environmental noise. Federal and State agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans; local noise ordinances and codes establish standards and procedures for addressing specific noise sources and activities.

Federal

Federal regulations establish noise limits for medium and heavy trucks (i.e., more than 4.5 tons, gross vehicle weight rating) under the Code of Federal Regulations, Title 40, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline. These standards are implemented through regulatory controls on truck manufacturers.

State of California

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA. The State pass-by standard for light trucks and passenger cars (i.e., less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the vehicle pathway centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.

City of Redwood City

Redwood City General Plan

Redwood City addresses issues of land use/noise compatibility, transportation noise, and community noise in the *Public Safety Element* of the Redwood City General Plan. The goals and policies in the General Plan *Noise Chapter* promote compatible development throughout the city and those listed below relate to the Project. Policies pertaining to noise and adopted for the purpose of avoiding or mitigating an environmental effect issues are listed below. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***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.

- ***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-13.8*:** 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

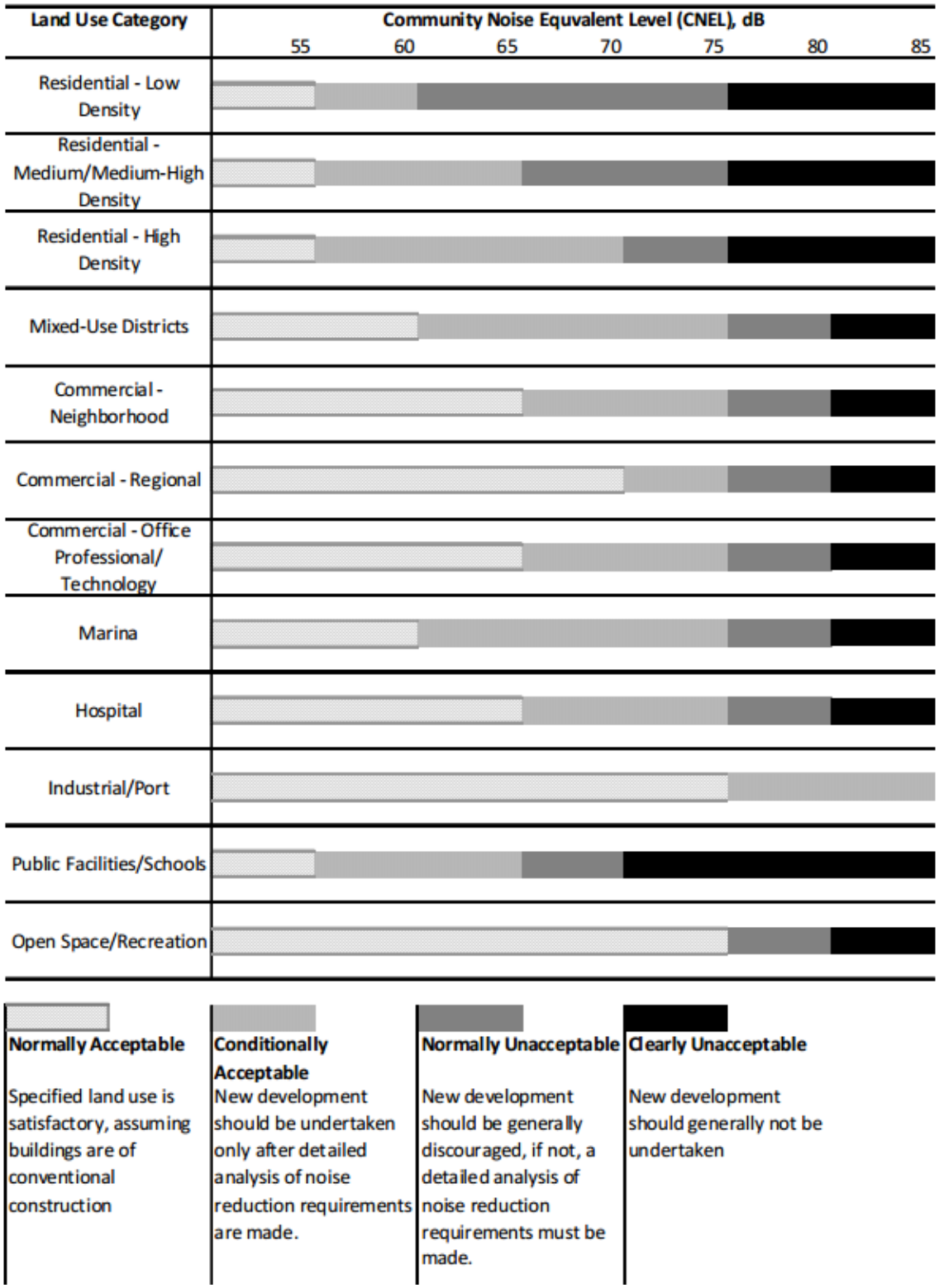
The General Plan also sets standards identifying appropriate noise levels for various uses within the City. **Figure 4.10-1** presents the City's Noise Guidelines for Land Use Planning, as presented in the City's General Plan Public Safety Element. The guidelines indicate acceptable and unacceptable noise environments for a variety of land uses, establishing more restrictive acceptable noise environments for noise sensitive uses such as residential, and less restrictive standards for noise tolerant industrial/port land uses.

Redwood City Municipal Code

Chapter 24 (Noise Regulation) of the Redwood City Municipal Code sets allowable noise limits for different types of receiving land uses. The noise levels allowed by the Noise Ordinance depend primarily on the background noise level in the area. For residential development, applicable noise limits are discussed in Chapter 24, Article II, Division 2 and 3. Section 24.21 prohibits noise increases of 6 dB above local ambient measured noise at any point within a residential district due to an assemblage of 3 or more people during the hours of 8:00 PM and 8:00 AM. Section 24.31 of the Noise Ordinance prohibits noise levels from exceeding 110 dBA for any item of machinery, equipment, or device used during construction in a residential district. Section 24.32 of the Ordinance prohibits construction during the hours of 8:00 PM to 7:00 AM weekdays, and at any time on Saturdays, Sundays, and holidays, if the construction generates noise levels exceeding the local ambient noise level measured at any point within a residential district.

San Carlos Airport Land Use Plan

The *San Carlos Airport Land Use Plan* (ALUP), which is a chapter of the San Mateo County ALUP, establishes airport noise and land use compatibility standards for development in the airport vicinity of San Carlos Airport and its takeoff and approach zones. Projected airport takeoff and approach zone CNEL noise contours presented in this plan are used to evaluate land use compatibility for proposed underlying developments; the 55 dBA CNEL noise contour is recognized as the threshold for review by the Airport Land Use Commission (ALUC). Underlying commercial land uses are considered compatible in noise environments less than 70 dBA CNEL, conditionally compatible in noise environments between 70 and 80 dBA CNEL, and incompatible in noise environments greater than 80 dBA CNEL. These compatibility guidelines are the same as those applied by Redwood City (see Figure 4.10-1).



SOURCE: City of Redwood General Plan, Public Safety Element, Noise Chapter. 2010.

Figure 4.10-1
Redwood City Noise Guidelines for Land Use Planning

4.10.3 Significance Criteria

Based on CEQA *Guidelines*, a project would cause adverse impacts to noise if it would:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels;

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e) 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 expose people residing or working in the project area to excessive noise levels; or

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Approach to Analysis

The Redwood City land use/noise compatibility guidelines are shown in Figure 4.10-1. A significant noise impact would result if the Project substantially increases noise levels at existing noise-sensitive land uses (e.g., residences) in its vicinity, in excess of the standards specified in Figure 4.10-1. For the assessment of traffic related noise, based on Caltrans' definition of a readily perceptible increase in noise levels, a permanent increase of 5 dBA or more in ambient noise levels in and around the Project area over levels existing without the Project would constitute a significant impact, especially if sensitive receptors located along these roadways would be exposed to these noise levels. Caltrans considers a noise increase of less than 3 dBA to be barely perceptible to people, while a 5-dBA increase is readily noticeable (Caltrans, 2009). Generally, traffic volumes on area streets would have to approximately double for the resulting traffic noise levels to increase by 3 dBA, the smallest perceptible change. Noise from other stationary sources would be considered to have a significant impact, if their operation increases noise levels at nearby sensitive receptors by 3 dBA or more.

Construction noise levels are treated differently because they are temporary and intermittent. Significant noise impacts would result from construction if noise levels were sufficiently high to interfere with speech, sleep, or normal residential activities. Construction-related hourly average noise levels received at noise-sensitive land uses above 60 dBA during the daytime and 55 dBA at night and at least 5 dBA higher than ambient noise levels would be considered significant.

The City of Redwood City has not adopted significance thresholds specific to groundborne vibration. The California Department of Transportation uses a vibration limit of 12.7 mm/sec (0.5 inches/sec) PPV for structurally sound buildings designed to modern engineering standards. A conservative vibration limit of 5 mm/sec (0.2 inches/sec) PPV is recommended for buildings that are found to be structurally sound but for which structural damage is a major concern.

Cumulative

Cumulative traffic noise level significance is determined by a two-step process. First a comparison is made of the increase in noise levels between cumulative conditions with the Project and existing conditions. If the roadside noise levels would increase by 5 dBA, a cumulative noise impact would be considered to occur. However, the proposed Project would only be considered to result in a significant cumulative roadside noise impact if its contribution to an increase of 5 dBA or more were to be cumulatively considerable. Consequently, the second step of the cumulative roadside noise analysis (if a cumulative noise impact is predicted) is to evaluate if the contribution of the Project to roadside noise levels is cumulatively considerable. This second procedure (if necessary) involves assessing whether the Project contribution to roadside noise levels (i.e., the difference between cumulative conditions and cumulative plus Project conditions) would result in an increase of 3 dBA or more which Caltrans recognizes as a barely perceptible increase (Caltrans, 2013).

Topics Considered and Determined No Impact

Based on the characteristics of the Project and the Project site location, adoption and development of the Project would not result in impacts related to the following criteria. No impact discussion is provided for these topics for the following reasons:

- ***Airports*** (Criteria e and f). The Project site is not located within the ALUP area for San Carlos Airport (CCAG, 2015) nor within close proximity to a private airstrip. Therefore, it can be assumed that no impact would occur with regard to criteria e and f.

4.10.4 Impacts of the Project

Construction Noise

Impact NOI-1: Construction activities associated with the Project would result in substantial temporary or periodic increases in ambient noise levels in excess of standards in the Project vicinity (Criteria a and d). (Potentially Significant)

Noise impacts from construction generally result when construction activities occur during the noise-sensitive times of the day (early morning, evening, or nighttime hours), in areas immediately adjacent to noise-sensitive receptors (primarily residential uses), or when construction noise lasts over extended periods of time.

Noise levels from construction activity at and near the Project site would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Construction-related vehicle trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 4.10-2** presented below shows typical exterior noise levels during different phases of construction, and **Table 4.10-3** shows typical noise levels generated by various types of construction equipment.

TABLE 4.10-2
TYPICAL CONSTRUCTION NOISE LEVELS

Phase	Noise Level (L_{eq})[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Exterior Finishing	89
Pile Driving	90-105

[a] Estimates correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase and 200 feet from the other equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, *Noise from Construction Equipment and Building Operations, Building Equipment and Home Appliances*, December 1971

TABLE 4.10-3
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{eq} at 50 feet)
Backhoe	80
Rock Drill	98
Air Compressor	81
Dozer	85
Air Compressor	85
Mobile Crane	83
Grader	85
Front End Loader	85
Trucks	88
Cranes	83
Pile Driver (Sonic)	96
Pile Driver (Impact)	101

SOURCE: FTA, 2006.

Section 24.31 of the Redwood City Noise Ordinance prohibits noise levels from exceeding 110 dBA for any item of machinery, equipment, or device used during construction in a residential district. Section 24.32 of the Ordinance prohibits construction during the hours of 8:00 PM to 7:00 AM weekdays, and at any time on Saturdays, Sundays, and holidays, if the construction generates noise levels exceeding the local ambient noise level measured at any point within a residential district.

As shown in Table 4.10-3, operation of construction equipment would generate noise levels as high as 105 dBA at 50 feet if pile driving is required as part of construction. Noise levels could be higher when more than one equipment is in operation. Noise from construction activities generally attenuates at a rate of 6.0 to 7.5 dBA per doubling of distance. Existing uses in the vicinity of the area are primarily industrial and recreational, and residential uses, which are considered most sensitive to noise, are located almost 1,500 feet from the project site. Therefore,

noise levels would attenuate to levels well below the standards specified by the Redwood City Noise Ordinance at these residences. However, the inmates housed in the Maple Street Correctional Center would be located within 100 feet of the Project's western boundary and would be most impacted by Project construction noise. Though construction of the Project would take place over a 19-month period, impacts would be highest only for the duration when Project construction takes place along the western boundary of the Project site. Construction activities shall be required to comply with the construction hour limitations set forth in the Redwood City Noise Ordinance and other noise reduction measures detailed in Mitigation Measure NOI-1; therefore, with the implementation of Mitigation Measure NOI-1, noise from Project construction would not exceed applicable standards or result in a substantial in increase in noise levels over the ambient noise environment. This impact would therefore be less than significant.

Mitigation Measure NOI-1: Throughout demolition, grading and construction, the Project applicant shall require construction contractors to limit standard construction activities as follows:

- Consistent with Section 24.32 of the Redwood City Noise Ordinance, construction activities shall be limited to the hours of 7:00 AM to 8:00 PM on weekdays; no construction shall take place at any time on Saturdays, Sundays, and holidays, if the construction generates noise levels exceeding the local ambient noise level measured at any point within a residential area.
- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA.
- Stationary noise sources shall be located as far from adjacent receptors as possible and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.

Significance after Mitigation: Less than Significant

Impact NOI-2: Construction activities associated with the Project would not result in exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels in the Project vicinity above levels existing without the Project (Criterion b). (Less than Significant)

Maximum vibration levels are generated by impact equipment such as pile drivers, which generate vibration levels of 1.16 in/sec PPV at 25 feet (FTA, 2006). As discussed under Significance Criteria, for modern, structurally sound buildings, the California Department of Transportation uses a vibration threshold of 0.5 inches/sec PPV. Groundborne vibration attenuates rapidly with distance;

hence, the effects are perceptible only within 30 to 100 feet of a source. As the Maple Street Correctional Center is located 100 feet from the Project site and the nearest residences are more than 1,000 feet away, vibration generated by Project construction equipment would attenuate to less than significant levels and would not be perceptible at the receptors. Therefore, any temporary impacts of groundborne noise and groundborne vibration from construction would attenuate within these distances to less-than-significant levels.

Mitigation: None Required

Operational Noise

Impact NOI-3: Operation of the Project would not create a substantial permanent increase in noise levels in the Project vicinity in excess of standards established in the Redwood City Noise Ordinance and Planning Code (Criteria a and c). (Less than Significant)

Operation of the Project would generate noise from stationary sources such as HVAC mechanical equipment in Project buildings that would operate throughout the day. Project buildings would also house emergency backup generators that provide power to the buildings during power outages. Though these generators are used only for emergency situations, they need to be regularly tested and maintained. These routine activities would also add to the operational noise levels generated by the Project.

The Redwood City Municipal Code does not specify noise limits for operational noise sources. But, Chapter 24 of the Municipal Code limits nighttime noise levels at receiving land uses, particularly for residential uses that are sensitive to noise. Section 24.21 prohibits noise increases of 6 dB above local ambient measured noise at any point within a residential district due to an assemblage of three or more people during the hours of 8:00 PM and 8:00 AM.

Project equipment would be housed within equipment wells located on building rooftops, which would provide adequate insulation and would not constitute a significant source of noise even in the immediate vicinity. Therefore, noise from the operation of mechanical equipment within Project buildings would not carry to offsite receptors.

Testing of the emergency generators would be limited to maximum of 50 hours per year, or on average about one hour a week, per BAAQMD permit requirements. The noise generated from the generators would be similar to that of a diesel-powered truck engine and this occasional testing would not result in a substantial permanent increase in noise levels over ambient conditions. Therefore, the Project would not generate a substantial permanent increase in operational noise that would exceed local standards. This impact of the Project's stationary sources would be less than significant.

Mitigation: None Required

Traffic Noise

Impact NOI-4: Traffic generated by the Project would not substantially increase traffic noise levels in the Project vicinity and adversely expose existing sensitive receptors (Criterion c). (Less than Significant)

Once operational, the Project would generate additional vehicle trips to the Project area resulting in an increase in traffic along the roadway network in and around the area. This would increase noise levels along roadway segments and intersections leading to the area as well as within the Project area. As discussed under Significance Thresholds, traffic related ambient noise increase of 5 dBA or more would be considered a significant impact, especially if sensitive receptors are located along the affected roadway segments. Traffic noise levels along roadway segments most affected by Project traffic were determined using the FHWA Traffic Noise Prediction Model and the turning movements in the traffic section for Existing and Existing plus Project conditions (see Section 4.14, *Transportation and Traffic,* in this chapter, and Appendix F.2 to this Draft EIR).

Peak hour (evening/PM) intersection turning data from the traffic study was used to estimate increase in traffic noise on roadway links most affected by traffic generated by development of the Project. This represents a worst case analysis as noise levels at other times of the day would be lower. The segments analyzed and the modeled noise increases along these segments are shown in **Table 4.10-4**, below.

Additionally, while not factored into the Project's traffic study, the Project sponsor of Harbor View has developed a Project-specific draft TDM plan that will reduce peak-hour vehicle trips from the Project and thereby reduce traffic generated noise. The TDM Plan is under review by C/CAG and then will be verified by the City prior to implementation of the Project (see Impacts AIR-3 and AIR-4, in Section 4.2, *Air Quality,* in this chapter).

The increase in traffic from the Existing to the Existing plus Project scenario would increase peak hour noise levels by less than 5 dBA at all studied roadway segments except for along the segment of Blomquist Street east of Maple Street, where roadside noise is projected increase by 5.2 dBA. Although there are no residential receptors located along this roadway segment, the Maple Street Correctional Center is located along the street.

However, noise impacts would be lessened by numerous factors associated with the location and construction of the buildings of the Maple Street Correctional Center. First, the buildings are set back at least 75 feet from the edge of the roadway, which would allow for attenuation of traffic noise. Further, there is no outdoor yard at this facility so inmates of the correctional center would not spend extensive amounts of time outside. Given that the correctional facility is newly constructed, the structure also provides for adequate outdoor to indoor noise attenuation to reduce noise exposure to inmates. Further, the traffic noise from the Project is one component of the total ambient noise environment along this roadway segment. There is an operational concrete and asphalt processing plant across the street of the Correctional Center (approximately 200 feet east on Blomquist Street), which would dominate the outdoor noise environment along this roadway segment, making the increase in traffic noise due to the Project less noticeable. Therefore, the inmates of the correctional center would not be exposed to substantial traffic noise increase from Project traffic, and this would be a less than significant impact with respect to traffic noise along analyzed roadway segments.

TABLE 4.10-4
PEAK-HOUR TRAFFIC NOISE LEVELS IN AND AROUND THE PROJECT AREA

Roadway Segment	(A) Existing	(B) Existing Plus Project	(B-A) Difference between Existing Plus Project and Existing[a]	(C) Cumulative No Project	(D) Cumulative Plus Project	(D-A) Difference between Cumulative Plus Project and Existing[b]	(D-C) Difference between Cumulative Plus Project and Cumulative No Project[c]
Bayshore Road west of Bair Island Road north	62.5	66.2	+3.7	68.6	69.4	**+6.9**	+0.8
Maple Street north of Veterans Blvd	64.0	66.4	+2.4	67.4	68.2	+4.2	+0.8
Blomquist Street east of Maple Street	62.8	68.0	**+5.2**	66.9	68.8	**+6.0**	+1.9
Blomquist St west of Seaport Blvd	63.1	67.1	+4.0	66.9	68.0	+4.9	+1.1
Whipple Ave east of 101 NB Ramps	62.6	65.3	+2.7	67.0	67.6	+5.0	+0.6
Maple Street south of Blomquist St	64.2	66.5	+2.3	66.2	67.3	+3.1	+1.1

NOTES:
Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model. The analysis considered the vehicle mix based on – cars 95 percent, medium trucks 3 percent, and heavy trucks 2 percent. Traffic speeds for all vehicle classes were set at 30 mph. Exceedances are in **bolded** text.

[a] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient noise level by 5 dBA Leq, especially if sensitive receptors located along these roadways would be exposed to these noise levels. As discussed in Impact NOI-4, inmates of the Maple Street Correctional Center would not be substantially exposed to the traffic-generated increase in ambient noise due to the setback distance of the center from the roadway, lack of outdoor yard areas, modern noise attenuation incorporated in to the newly constructed facility, and existing dominant ambient noise source of the nearby concrete and asphalt processing plant located approximately 200 feet east of the Correctional Center.

[b] Considered significant cumulative if the incremental increase in noise is greater than 5 dBA over existing conditions, especially if sensitive receptors located along these roadways would be exposed to these noise levels.

[c] Considered a cumulatively considerable contribution to a significant noise increase if the incremental increase in noise is greater than 3 dBA when the cumulative increase in the preceding column is greater than 5 dBA.

SOURCE: ESA, 2018

Mitigation: None Required

Impact NOI-5: Operation of the Project would not result in exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels in the Project vicinity above existing levels without the Project (Criteria b). (Less than Significant)

Development of the Project would not introduce any permanent new sources of significant groundborne vibration, nor would it place sensitive uses adjacent to existing sources of vibration; as the Project proposes a commercial office campus and associated parking. This impact would be less than significant.

Mitigation: None Required

4.10.5 Cumulative Noise

Impact NOI-1.CU: Traffic generated by development of the Project, in combination with traffic from cumulative development in the Project vicinity and citywide, including past, present, existing, approved, pending and reasonably foreseeable future development; and construction and operational noise levels in combination with traffic from cumulative development would not contribute considerably to cumulative noise impacts (Criterion c). (Less than Significant)

The geographic area considered for cumulative noise analysis includes areas within and surrounding the Project site and roadways examined in the transportation analysis in Section 4.14, *Transportation and Traffic*. Cumulative development contributing to the existing and future noise environment considered in this includes those in the development forecasts conducted for this EIR based on the countywide transportation model and the Highway 101/SR84 (Woodside Road) Interchange Improvement Project and other approved, pending, and reasonably foreseeable future projects citywide, including the nearby San Mateo County Replacement Jail and several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan (see Section 4.0.4 *Cumulative Analysis* in Section 4.0 of this chapter).

Long-term noise from cumulative development would primarily occur from motor vehicle traffic. When considered alone, development of the Project would generate noise mainly by adding more traffic to the area. Other anticipated projects would also contribute to noise in the area due to increased traffic volumes. Notably, any project that would individually have a significant project level noise impact would also be considered to have a significant cumulative noise impact.

As indicated above under *Approach to Analysis*, a permanent noise increase of 5 dBA or more in ambient noise levels in the Project vicinity above levels existing without the Project would be considered to generate a significant impact. Traffic noise levels at intersections most impacted by Project traffic were modeled using the FHWA Traffic Noise Prediction Model and the turning movements for Cumulative No Project and Cumulative plus Project (2040) conditions. The segments analyzed and the results of the noise modeling are shown in Table 4.10-4 for Cumulative

No Project and Cumulative plus Project traffic, which includes Project traffic combined with traffic from other approved or pending projects for the year 2040 (assumed buildout year).

For the Project, Table 4.10-4 shows that while the increase in peak hour traffic noise between Existing and Cumulative Plus Project (2040) scenario would exceed 5 dBA at some roadway segments, the Project's contribution to cumulative noise would be less than 3 dBA and hence would not be a cumulatively considerable contribution. As the increase from Cumulative No Project to Cumulative plus Project conditions would be less than 3 dBA for all analyzed intersections, it can be concluded that the Project would not have a significant contribution to the 2040 cumulative roadway noise levels at any sensitive land uses in and around the Project vicinity, and the impact would be less than significant.

Construction

The cumulative effect of construction noise and vibration impacts resulting from cumulative development would be less than significant since noise is a localized impact that attenuates significantly with distance, construction of projects in different areas of and around the Project site would not necessarily cumulatively increase ambient noise levels. The geographic scope of analysis for cumulative noise and vibration impacts encompasses sensitive receptors within approximately 500 feet of the Project site. Beyond 500 feet, the contributions of noise from other development projects would be lessen greatly with both distance and due to intervening structures (such as Highway 101), and their contribution to a combined effect is reasonably considered to be minimal. Similarly, operational noise associated primarily with mechanical operations (HVAC) of cumulative development would also be at less than significant levels as these sources would be spread throughout and around the Project vicinity and such operations would occur in accordance with all manufacturer and building code requirements addressing operational noise levels of the equipment.

Overall, the contribution of noise and vibration effects from development of the Project would not be cumulatively considerable, and the impact is less than significant.

Mitigation: None Required

References – Noise

California Department of Transportation (Caltrans), 2004. *Transportation- and Construction-Induced Vibration Guidance Manual*, June 2004.

California Department of Transportation (Caltrans), 2009. *Technical Noise Supplement*, November 2009.

California Department of Transportation (Caltrans), 2013. *Technical Noise Supplement*, September 2013.

City of San Carlos, *2030 General Plan*, 2009.

City/County Association of Governments (CCAG) of San Mateo, Final Comprehensive Airport Land Use Compatibility Plan for the Environs of the San Carlos Airport, adopted October 2015.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06)*, May 2006.

Redwood City General Plan, *Public Safety Element*, Noise Chapter. 2010.

U.S. Environmental Protection Agency, 1971. *Noise from Construction Equipment and Building Operations, Building Equipment and Home Appliances*, December 1971.

U.S. Department of Housing and Urban Development (HUD). *The Noise Handbook.* 2009.

4.11 Population, Housing and Employment

This section identifies and evaluates the potential impacts related to population, housing, and employment that could potentially result from development of the proposed Project.[1] This section describes past and existing demographic trends, as well as projections at the citywide, countywide, and regional level to provide an appropriate context for assessing the Project's potential effects. For informational purposes, this section also discusses jobs/housing balance.

4.11.1 Environmental Setting

The information presented in this *Setting* describes the trend of growth occurring and projected for the City of Redwood City, based largely on regional projections data published by the Association of Bay Area Governments (ABAG) its *Projections* 2013 and detailed in **Table 4.11-1**.

ABAG's methodology considered existing and planned land use data provided by local jurisdictions (typically assumptions underlying the jurisdictions general plan) in formulating local and regional projections. Therefore, the growth envisioned in Redwood City's 2010 General Plan is generally reflected in the projections in Table 4.11-1. ABAG projections also reflect market factors as well as policy direction to increase the share of regional development that occurs in the Bay Area's major cities and in higher-density, urban locations that have good accessibility and are served by transit. The rates of growth of population, housing, and employment in Redwood City are forecast to exceed the rates of growth for San Mateo County and the Bay Area overall.

Population and Housing

Population

There are currently approximately 82,520 people living in Redwood City, about 11 percent of the total population of San Mateo County (763,220). Redwood City's population is growing, with approximately 22 percent growth expected to occur by 2040. Similarly, ppopulation growth in San Mateo County by 2040 is similarly expected to increase by approximately 18 percent. (ABAG, 2013; see Table 4.11-1 below)

Project Area Population

There are no residential units near the Project site. The closest residents are persons living in group living quarters of the Maple Street Correctional Center adjacent to the Project site; people not living in households are classified as living in group quarters. Liveaboards exist in the area known as the Docktown Marina located along Redwood Creek, approximately 1,500 feet west of the Project site.

[1] CEQA *Guidelines* Appendix G (environmental factor *XIII. Population and Housing*, item "A") refers to population growth resulting from *new businesses, as well as homes*. Therefore, the topics of employment and its relation to population growth are addressed in this Draft EIR chapter.

TABLE 4.11-1
ESTIMATED DEMOGRAPHIC TRENDS AND GROWTH FOR REDWOOD CITY AND SAN MATEO COUNTY– 2010 TO 2040

	2010	2018	2030	2040	Change, 2018-2040	Percent Change, 2018-2040
Redwood City						
Total population (residents)	76,815	82,520	91,900	100,800	**18,280**	**22.2%**
Total households	27,957	30,316	33,880	36,860	**6,544**	**21.6%**
Persons per household	2.69	2.72	2.71	2.73	**0.01**	**0.04%**
San Mateo County						
Total population (residents)	718,451	763,220	836,100	904,400	**141,180**	**18.5%**
Total households	257,837	273,810	296,280	315,100	**41,290**	**15.1%**
Persons per household	2.75	2.79	2.79	2.83	**0.04**	**1.4%**

[a] Year 2018 data interpolated from Years 2015 and 2020 ABAG Data

SOURCE: ABAG, 2013, *Projections 2013*

Households and Housing Units

A household includes all the people who occupy a housing unit. The average household size in Redwood City is 2.72 persons per household. The city's households make up approximately 11 percent of the total County households, which has the same average household size as the city. (ABAG, 2013; see Table 4.11-1 above)

A housing unit is a house, an apartment, mobile home, group of rooms or a single room occupied as separate living quarters. According to 2018 California Department of Finance estimates and summarized in **Table 4.11-2** below, the city has approximately 30,693 housing units in 2018, which is the result of a steady growth since 2010 – a total of 5.2 percent or approximately 190 units per year. Since 2010, the city's rate of housing growth has nearly doubled that of the County, where the prior decade experienced substantial housing growth in other parts of the County. (Census, 2010; see Table 4.11-2 below)

TABLE 4.11-2
HOUSING UNIT TREND IN REDWOOD CITY AND SAN MATEO COUNTY – 2000-2018

	2000	2010	2018	Percent Change, 2000–2010	Percent Change, 2010–2018
San Mateo County	260,576	271,031	278,044	4.0%	**2.6%**
Redwood City	28,921	29,167	30,693	0.9%	**5.2%**

SOURCES:

U.S. Census Bureau, 2010 Census, *Table DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data.*

California Department of Finance*, Table E-5 City/County Population and Housing Estimates (5/1/2018), http://www.dof.ca.gov/forecasting/demographics/Estimates/E-5/documents/E-5_2018InternetVersion.xls*

The 2018 housing vacancy rate in the city is 2.1 percent, which represents a decline since 2010, even with the increase of housing units. This trend has been relatively the same for the County, which has a slightly higher vacancy rate of approximately 5 percent (CDF, 2012; 2015). A low vacancy rate often means that households are having difficulty finding housing within their price range; a high vacancy rate may indicate an oversupply of units.

Housing Affordability

The State of California mandates that General Plan Housing Elements must allocate and accommodate a certain number of housing units by affordability level to help plan to meet a jurisdiction's share of projected adequate housing for the State. The Regional Housing Needs Allocation (RHNA) process determined that the City needs to demonstrate capacity for 2,789 new units for the current planning period of 2015-2023, an increase of 50 percent from last cycle's allocation (City of Redwood City, 2018; Table H-54).

There are approximately 1,347 housing units either approved or built within the current planning period in the city (City of Redwood City, 2018; Table H-55). Combined with 3,333 potential units identified in the City's Site Inventory, including the recently approved 131-unit 1548 Maple Street residential project nearby, the City can meet over 175 percent of the RHNA (City of Redwood City, 2018; Table H-60). In lieu of providing affordable housing units, the proposed Project would contribute fees as required under the City's Affordable Housing Ordinance. (City of Redwood City, 2018)

Employment

The positive employment trends in Redwood City aligned directly with those of the County and the Bay Area. As shown in **Table 4.11-3**, the number of total jobs in Redwood City as of 2018 was approximately 68,240. Between 2010 and 2018, total jobs in the city increased by 17.4 percent (10,160 jobs), and the current total is projected to increase by approximately 13.5 percent (9,240 jobs) by 2040. These city employment trends mirror the County and Bay Area trends for the same period. (ABAG, 2013; see Table 4.11-3 below)

Project Area Employment

Recent employment on and around the Project site included jobs associated with building and lumber supply businesses around the area of Blomquist Street and Seaport Boulevard, including previous businesses that existed on the Project site when this EIR was initiated, and that have since been purchased by the Harbor View project sponsor and ceased operation. For the most conservative analysis of potential growth resulting from the proposed Project, no existing employment is assumed.[2] Employment in nearby areas include the civic jobs associated with the nearby jail facilities and shelter.

[2] Although some businesses operated on the Project site when preparation of this EIR started in early 2018, the analysis throughout is conservative in that it does not subtract out the effects (e.g., traffic, emissions, jobs).

TABLE 4.11-3
ESTIMATED JOB TRENDS AND GROWTH FOR REDWOOD CITY AND SAN MATEO COUNTY – 2010 TO 2040

	2010	2018	2030	2040	Change, 2018-2040	Percent Change, 2018-2040
Redwood City						
Total jobs	58,080	68,240	73,330	77,480	**9,240**	**13.5%**
Total households	27,957	30,316	33,880	36,860	**6,544**	**21.6%**
Total jobs per household	2.69	2.3	2.16	2.73	**0.43**	**18.6**
Total employed residents	36,460	41,688	45,310	48,630	**6,942**	**16.6**
San Mateo County						
Total jobs	345,190	394,506	421,500	445,070	**50,465**	**12.8%**
Total households	257,837	273,810	296,280	315,100	**41,290**	**15.1%**
Total jobs per household	1.33	1.44	2.79	1.41	**-0.03**	**-2.1%**
Total employed residents	342,060	386,448	413,740	438,770	**+52,332**	**13.5%**

[a] Year 2018 data interpolated from Years 2015 and 2020 ABAG Data

SOURCE: ABAG, 2013, *Projections 2013*

Jobs/Housing Balance

In *Plan Bay Area 2040*, the Bay Area's integrated land use and transportation plan prepared and adopted by ABAG and the Metropolitan Transportation Commission (MTC), "The Regional Housing Crisis," assessment recognizes the lack of housing for the growing number of people who want to live and work in the Bay Area. The limited supply of both market-rate and affordable housing has led to rapidly rising rents and home prices (ABAG/MTC, 2017b).

This overall issue is referred to as "jobs/housing imbalance": the ratio or balance of the number of jobs and the number of housing units in a particular geographic area, without regard to economic constraints or individual preferences. One way to measure the jobs/housing balance is as a ratio of employees to housing units. It is also considered with a comparison of employed residents to people working in the city.

The principal effects of this imbalance are known to include: increased travel and commute distances; increased traffic congestion; increased automobile dependency; increased housing affordability problems, especially in "job-rich" cities; increased automobile emissions, including greenhouse gas emissions, affecting air quality and contributing to global climate change; increased noise; and overburdened urban services and facilities (ABAG/MTC, 2017b).

(See *Approach to Analysis,* for applicability of a jobs/housing balance assessment in the CEQA analysis.)

4.11.2 Regulatory Setting

Redwood City General Plan

The *Built Environment Element* (Economic Development) of the General Plan include the following policies relevant to the proposed Project and area. Policies listed below that are also considered land use policies are addressed in Section 4.9*, Land Use and Planning*, of this Draft EIR.

- ***Policy BE-32.4:*** Maintain the Port of Redwood City as a critically important use, and protect long-term Port, Port-related, and surrounding industrial uses from the encroachment of incompatible land uses as appropriate.
- ***Policy BE-32.5:*** Encourage emerging industries and businesses.
- ***Policy BE-34.2:*** Continue to support industries that provide a range of jobs at prevailing living wages through land use policies and other City activities.
- ***Policy BE-34.4:*** Promote a mix of housing types at a range of affordability options
- ***Policy BE-34.6:*** Encourage adequate child care capacity to support the city's local workforce.

The Project site is within the City's Seaport Boulevard Northwest Heavy Industrial Employment Zone designated in the General Plan and based primarily on existing employment industries located within the defined area.

4.11.3 Project Baseline

Baseline conditions reflect the condition of the Project site as they generally existed at the time of the issuance of the Notice of Preparation issued on January 12, 2018, as described above in *the Environmental Setting*. Data available from the primary sources used in this section include ABAG *Projections* 2013, the California State Department of Finance (CDOF), California Employment Development Department (EDD), and the U.S. Census in data reported in 2015, reflecting year 2014 conditions (all or in part).

4.11.4 Significance Criteria

Based on CEQA Guidelines Appendix G, the Project would cause significant adverse impacts to population and housing if it would:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Approach to Analysis

As noted under *Project Baseline* above, to establish historic and baseline conditions relevant to the potential effects of the Harbor View project, this analysis uses published sources of demographic data and projections including but not limited to ABAG *Projections* 2013, State CDOF and EDD, and the U.S. Census.

The analysis quantifies the population, housing, and employment changes resulting from the proposed Project. Those totals are added to baseline conditions to show the effect on existing conditions. The proposed Project does not propose new housing uses; the Project will directly result in new employees, and this analysis does not make any projection about where new employees will live or if there will be any change in their residency due to new employment at the Project site. Further, this assessment compares how the increased employment growth affects growth projected in the General Plan and in ABAG *Projections,* which demonstrates the extent to which growth from the Project could be accommodated within already forecasted growth. The analysis also evaluates if new and extended infrastructure proposed by the Project site was already anticipated or would facilitate unplanned growth.

This section includes a discussion of jobs/housing balance for informational purposes only. Given the numerous principal effects of jobs/housing imbalance discussed in the *Environmental Setting,* it is most appropriate that it is a planning tool with which to weigh particular policy considerations on a regional scale, and not a regulatory tool for development proposals. Nor does jobs/housing balance necessarily imply a physical change to the environment or relate to any recognized criteria under CEQA. Due to extensive comments raised during the scoping period for this EIR, the job/-housing balance consideration is discussed for informational purposes. The balance between jobs and housing is assessed on citywide and regional scales, rather than on a project-by-project basis.

Topics Considered and Determined No Impact

Based on the characteristics of the Project and the Project site location, adoption and development of the Project would not result in impacts related to the following criteria. No impact discussion is provided for these topics for the following reasons:

Displacement of Housing/People (Criteria b and c). Development of the proposed Project would not displace existing housing units or people, as none exist on the Project site. Therefore, the Project would have no impact with regard to criteria b and c.

4.11.5 Impacts of the Project

Induce Population Growth

Impact POP-1: The proposed Project would not induce substantial population growth in the area, either directly (for example, by proposing new homes and businesses).or indirectly (for example, through extension of roads or other infrastructure) (Criterion a). (Less than Significant)

Project Employment Compared to General Plan Growth

Development of the proposed Project would result in direct employment growth by developing new office use: an estimated 4,579 new employees.[3] No other land uses are proposed. **Table 4.11-4** shows that the proposed Project would increase existing growth conditions by adding approximately 6.7 percent to employment citywide.

TABLE 4.11-4
CHANGE TO EXISTING CONDITIONS WITH PROPOSED PROJECT[a]

	2018 Existing – Citywide [b]	2018 Existing - Project Site	Proposed Project	Existing Citywide + Proposed Project	Increase to Existing Citywide with Project
Population	82,520	0	0	82,520	**0%**
Households	30,316	0	0	30,316	**0%**
Employment	68,240	0	4,579 [c]	72,819	**6.7%**

[a] Redwood City City Limits
[b] Year 2018 data interpolated from Years 2015 and 2020 ABAG Data
[c] Assumes 250 employees per square foot of office space (1,144,748 sq.ft.), per U.S. Green Building Council, 2008

SOURCE: Redwood City General Plan EIR, 2010.

As shown in **Table 4.11-5**, the General Plan population is anticipated to increase by about 19.4 percent over 2008 levels with an increase of 28.8 percent for households and an increase of 48.4 percent for employment. Table 4.11-5 also shows that with the proposed Project's employment added to the City's 2030 growth, the citywide employment would increase at 53.8 percent compared to 48.4 percent without the Project.

The current General Plan land use designation on the majority of the Project site is "Industrial – Light" (LI), which supports low-intensity industrial uses. As described and analyzed under a theoretical industrial use development program that could be constructed on the Project site today, without changes to the General Plan, there could be an estimated 1,728 employees on the Project site.[4] The potential employment estimated with the proposed office use Project is 4,579 employees, which is approximately 2,851 more workers than under the existing General Plan designation.

[3] Approximately 250 employees per square foot of office space (1,144,748 sq.ft.) (USGBS, 2008).
[4] Approximately 405 employees per square foot of low-rise light industrial/low-intensity industrial / building materials space (theoretically 884,810 sq.ft., as established in the No Project – General Plan Alternative in Chapter 5, *Alternatives,* of this Draft EIR) (USGBS, 2008).

TABLE 4.11-5
CHANGE TO CITY OF REDWOOD CITY GENERAL PLAN GROWTH 2008-2030, WITH AND WITHOUT PROPOSED PROJECT [a]

	2008 General Plan Baseline	2030 General Plan Buildout	Proposed Project Buildout – Net New	2030 General Plan + Proposed Project Buildout	Change in General Plan Growth 2008-2030: without Project	Change in General Plan Growth 2008-2030: with Project
Population	77,071	92,013	0	92,013	19.4%	19.4%
Households	28,522	36,749	0	36,749	28.8%	28.8%
Employment	52,300	77,623 [b]	2,851 [c]	80,474	**48.4%**	**53.8%**

[a] Redwood City City Limits
[b] Includes an estimated 1,728 employees that could theoretically exist on the Project site from uses allowed by the existing General Plan.
[c] Net new employees assumes 4,579 employees (250 employees per 1,144,748 square feet of office space [per U.S. Green Building Council, 2008]), less the estimated 1,728 employees that could theoretically exist on the Project site under the General Plan (footnote "b")

SOURCE: Redwood City General Plan EIR, 2010

This difference in citywide General Plan employment growth, with and without the proposed Project, is approximately 5.4 percentage points (53.8 percent to 48.4 percent, see Table 4.11-5). This is comparable to the 6.7 percent increase in citywide employment that would result with the proposed Project (Table 4.11-4), and less than the 12.8 percent job growth projected countywide (Table 4.11-3). This incremental increase in employment resulting from the proposed Project would not be considered substantial unanticipated growth to existing conditions or compared to 2030 growth underlying the General Plan.

Infrastructure Expansion and Other Demands

Although the proposed Project would result in more growth on the Project site than envisioned by the General Plan – in terms of land uses allowed by the existing General Plan designations, as well as the 2030 buildout growth underlying the General Plan – that additional growth increase would not require or involve the extension of existing infrastructure into areas not previously anticipated for growth in the city. The Project area and site is currently served by all main utility infrastructures, and infrastructure improvements or extensions are typical of major site redevelopment or intensification. As described in Section 4.13, *Utilities and Service Systems,* the proposed Project will involve the relocation of existing water lines and sanitary sewer pipe (and payment of mitigation fees toward overall system improvements); the extension of pipes to the existing recycled water system; and the relocation of existing stormwater drains. Other potential environmental effects of the increase in employment on the Project site are secondary effects of increased traffic and related emissions, as well as increased utility system demands—all of which are analyzed in other sections of this chapter of the Draft EIR, with appropriate mitigation measures identified where necessary.

Summary

Overall, the proposed Project would not directly or indirectly induce substantial population growth. The Project would increase employee population on the Project site; \however, this growth would not be substantial, as described above. The impact would be less than significant.

Mitigation: None Required

4.11.6 Cumulative Impacts

Impact POP-1.CU: The Project, combined with cumulative development in the Project vicinity and citywide, would not result in a significant effect to population, housing, and employment. (Less than Significant)

Geographic Context

The geographic context for the cumulative consideration of population, housing, and employment effects includes the Project site and its vicinity, the City of Redwood City, and San Mateo County (encompassing Redwood City's sphere of influence). Certain regional information is also considered throughout the Project analysis in Impact POP-1 in order to provide a broader regional context.

Impact Analysis

Criterion "a" (whether the project will induce substantial population growth, directly or indirectly, such that additional infrastructure is required) is inherently a cumulative consideration, as it considers past, present and future data trends and plans, as summarized in the Tables 4.11-1 and 4.11-3 in this section. Much of the cumulative context is imbedded in the development forecasts underlying this EIR and the cumulative projects list (past, approved, pending, under construction) included in Table 4.0-1 in Section 4.0 of this chapter. The impact analysis in this section is based on these projections, which take into account cumulative growth through 2040 for the geographic context described above.

As discussed in Impact POP-1, some portion of the employment growth that would result from the Harbor View project was anticipated in City's General Plan maximum growth assumptions. The General Plan clearly envisioned increased growth through a mix of land uses in the Redwood Creek/Harbor Center and Port neighborhoods. Table 4.11-5 compares various growth factors under the General Plan and the proposed Project. Employment growth with the proposed Project would be greater than what could theoretically happen on the Project site under the General Plan (1,728 compared to 4,579 employees). However, the difference in citywide General Plan employment growth with and without the proposed Project would be comparable – 5.4 percent and 6.7 percent (Tables 4.11-4 and 4.11-5) and less than the 12.8 percent employment change forecast countywide (Table 4.11-3).

As also shown in Table 4.11-3, ABAG's 2040 forecasts indicate that the number of total jobs in the city would increase from 68,240 to 77,480, or 13.5 percent. With the 2,851 new employees from the proposed Project considered (excluding employment that could otherwise already occur on the Project site under the General Plan), the employment growth would increase 68,240 to 80,331, or 17.7 percent. Thus, the proposed Project in combination with past, present, and reasonably foreseeable future projects in the vicinity would not contribute to significant unplanned employment growth.

In all cases, the growth envisioned by the City – including cumulative growth in the General Plan and beyond the Redwood Creek/Harbor Center neighborhood – drives and/or is imbedded in local planning forecasts, regional development forecasts, and travel demand models, as well as the City's ongoing capital improvement program for the renewal of aging infrastructure, including area roadways. For example, the nearby extension of Blomquist Street (west-northwest of Maple Street) to connect with the roundabout at Bair Island Road via a new bridge crossing over Redwood Creek, is a planned improvement that is part of the City's Transportation Impact Mitigation Fee Program (TIF). The proposed Project will contribute to the TIF, since redevelopment of the Project site was factored the growth contributing to the existing and projected roadway needs. While infrastructure improvements and the Blomquist extension will support the proposed development under the proposed Project, those improvements would be warranted for any substantive redevelopment in the Redwood Creek / Harbor Center neighborhood.

When considered in combination with other cumulative development, growth from the Harbor View Project would not induce substantial additional population or employment growth, nor displace any housing units or people.

Mitigation: None Required

4.11.7 Job/Housing Balance

This discussion is provided for informational purposes only, as discussed in the *Approach to Analysis* (in 4.11.4, *Significance Criteria*), as jobs/housing balance does not necessarily imply a physical change to the environment or address any recognized criteria under CEQA, and is a consideration most practically assessed on a citywide or regional scale.

In 2018, Redwood City is estimated to have 68,240 jobs (see Table 4.11-3) and approximately 30,693 housing units (see Table 4.11-2) — a jobs/housing ratio of 2.2 jobs to housing unit. Stated another way, in 2018, of the 68,240 jobs in Redwood City, 61 percent (41,688) are employed residents (see Table 4.11-3), reflecting a net daily inflow of 26,552 workers to the city.

Project Housing Demand

The proposed Project does not include housing. While there is no requirement for non-residential projects to also include or development housing onsite or offsite, the Project sponsor will pay affordable housing in-lieu fees pursuant to the City's existing Affordable Housing Ordinance. The Ordinance is intended to support the development of new housing for the City to meet its RHNA affordable housing obligation, and relative to the issue of jobs/housing balance, it supports the development of new off-site housing within the city (i.e., near the new Project workers and regional transit), and that contributes to a diverse range of housing affordability for workers who elect to live in Redwood City in 2020 when the proposed Project would begin operation. Numerous speculations would be required to estimate housing demand for the

Project's workers, and none are made for purposes of the CEQA analysis herein. The exception is an example scenario considered for purposes of estimating potential student population, which theoretically estimates that new employees who could choose to relocate to the city because of their job at the proposed Project could demand approximately 2,043 housing units (see Impact PSR-3 regarding new school-age student generation in Section 4.13, *Public Services*, of this chapter).

Jobs/Housing at Project Buildout

Compared to the existing 68,240 jobs in Redwood City referenced above, 70,960 jobs are projected for the city in 2020 (ABAG, 2013). Adding the 4,579 new Project employees, the city's 2020 employment would increase to 75,539 jobs.[5] Also, approximately 31,569 housing units are projected for the city in 2020 (ABAG, 2013).[6] This would result in the city continuing to have a jobs/housing ratio of 2.1 jobs to housing unit. For comparison, assuming half of the new Project employees (2,290) choose to relocate to Redwood City in 2020 because of the Project (as was assumed in the aforementioned housing demand estimate to estimate school-age students), the jobs/housing ratio would remain 2.1. Also, of the 75,539 jobs in Redwood City in 2020 (including all Project employees), 57 percent (43,060) are employed residents (ABAG, 2013), reflecting a net daily inflow of 32,479 workers to the city.

Project Housing Demand

According to the City's 2015-2023 Housing Element, the city has the potential to accommodate the construction of up to 3,333 new housing units at various affordability levels through 2023. Some of those potential units are part of the projected 31,569 housing units that ABAG projects for Redwood City by 2020 when the Project becomes operational, or through 2023, the end of the City's Housing Element study period (City of Redwood City, 2018).

It is reasonable that the portion of the 3,333 potential new units that may be constructed in the city through 2023, would not be enough to support the Project's theoretical demand for 2,043 units in 2020, in addition to other housing demand citywide. However, ABAG projects a 34 percent increase in housing units for the city 2018 to 2040, and a 23.3 percent increase Countywide (ABAG/MTC, 2017b). Therefore, the new housing demand that may result from the new Project employees wanting to live in Redwood City (2,043 units) or elsewhere throughout the County could be adequately addressed in part by the anticipated housing units expected to be developed by 2040.

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5 This theoretically assumes that none of the new Project employees would already reside and work in Redwood City by 2020.

6 Projected 2020 housing units are based on projected 30,920 households in 2020 (per ABAG, 2013), factoring in the current 2.1 housing vacancy rate. Also, total housing units are assumed to include the approved units in the City's Housing Element Site Inventory 2015-2023, discussed under *Housing Affordability* in this section.

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4.12 Public Services and Recreation

This section addresses the potential impacts that development of the Project could have to public services, including police protection services, fire protection and emergency services, public schools, and libraries provided in Redwood City. This section also addresses the potential physical impacts regarding recreational facilities that could occur with implementation of the Project.

4.12.1 Environmental Setting

Fire Protection and Emergency Medical Services

The Redwood City Fire Department (Fire Department) provides fire protection and suppression, and emergency medical service, for the Project site. The Fire Department is currently staffed by 91 personnel including captains and battalion chiefs, firefighter-paramedics, firefighters, fire prevention staff, training staff, and administrative staff located at seven stations (Redwood City, 2012). All Fire Department staff includes full-time employees, and the Department operates pursuant to a minimum daily staffing requirement of 26 on-duty staff (Redwood City, 2010a).

The Fire Department is the official fire service provider in the City, however, automatic aid is provided by the California Department of Forestry and Fire Protection-CALFIRE/San Mateo County Fire, Menlo Park Fire Protection District, Woodside Fire Protection District, and the San Carlos Fire Department. The Redwood City Fire Department and these other fire departments participate in a countywide automatic aid agreement system and the Greater Alarm Plan, which is a countywide response plan that allows continuous coverage from the closest fire protection resources to an incident within San Mateo County (San Mateo, 2010) The Fire Department is also a signatory to various statewide mutual aid agreements (Redwood City, 2012). The Fire Department also works with American Medical Response, a private company which provides paramedic ambulance service under a joint powers agreement with San Mateo County (Redwood City, 2010b). All fire department units first out units are equipped with advanced life support equipment and a firefighter/paramedic (Redwood City, 2010b).

In case of a large-scale emergency or area-wide disaster, the Fire Department is responsible for direct intervention and to be on the front lines to help maintain public safety and provide infrastructure repair, alongside the Police Department, Redwood City Public Works Department, and the San Mateo County Office of Emergency Services (Redwood City, 2010a).

The Project site would be served by Fire Station #9, which also serves the Downtown area. Fire Station #9 is located at 755 Marshall Street, approximately 1.6 miles west of the Project site. The current travel time from this station to the Project site is less than approximately five minutes.

Response from this station is currently provided with an engine staffed by a fire captain and two firefighters, one ladder truck staffed with a fire captain and three firefighters, and one duty battalion chief. (Redwood City, 2012).

The Fire Department's minimum daily staffing requirement of the 26 on-duty staff allows it to reach their goal of responding to calls for service within five minutes at least 85 percent of the time (Redwood City, 2010a).

Police Protection

The Redwood City Police Department (Police Department) provides police service within the Redwood City limits. The Police Department provides service from one central police station – its headquarters located at 1301 Maple Street, approximately 800 feet west of the Project site. One substation is located in Downtown Redwood City at the Fox Theater at 2215 Broadway.

The Police Department consists of 135 full-time employees: 94 sworn members and 30 non-sworn support staff, part time and volunteer staff. The sworn employees include one police chief, one deputy police chief, two captains, four lieutenants, 12 sergeants, and 74 officers. The City does not use an officer-to-population ratio as a specific goal for police service.

The Police Department has permanently staffed police patrol areas (beats). The Project site is located in Beat 2. Beat 2 has officer coverage 24 hours per day, 7 days per week. Also in Beat 2, motorcycle officers frequently conduct traffic enforcement activities to address specific complaints (Redwood City, 2012). Emergency units are routinely on patrol within their assigned beat, making emergency dispatch and response relatively immediately.

Incoming calls to the Police Department are divided into three categories: Priority 1 involves life-threatening situations, Priority 2 are not life-threatening, but necessitate immediate response, and Priority 3 includes all other calls. Response times in the vicinity of the Project site are typically less than 2 minutes for emergency calls, approximately 6 minutes for priority calls, and less than 15 minutes for routine calls (Redwood City, 2012). Citywide the average response time is 2.22 minutes for emergency calls, 5.5 minutes for urgent calls, and 12.5 minutes for routine calls. These response rates are within the City's established response time goal of five minutes or less for all emergency calls (Redwood City, 2010a).

Schools

District

The Project site is located within the boundaries of the Redwood City School District (RCSD) and the Sequoia Union High School District (SUHSD). RCSC serves 7,700 students and is comprised of 16 schools serving students in grades PreK-8 in Redwood City and portions of Atherton, Menlo Park, San Carlos, and Woodside. RCSD 8th graders feed into the SUHSD, which serves 8,768 students through several high schools and specialized services. (CA SchoolDashboard, 2017)

Elementary

The Project site is served by Taft Elementary School (also referred to as Taft Community School) located about 2.0 miles to the south at 903 10th Street, south of US 101. Taft Elementary had 410 students in attendance as of fall 2017, which is a 25 percent reduction since the 2013-2014

school year (CA SchoolDashboard, 2017) and a capacity of approximately 569 students (Redwood City, 2010a). Hoover Elementary (about 1.5 miles south) and Orion Elementary (about 1.0 mile west) are also located in the vicinity of the Project site.

High School

The Project site is served by Sequoia High School located at 1201 Brewster Ave, about 1.5 miles west of Highway 101 and the Project site. Sequoia had approximately 2,183 students in attendance as of fall 2017, which is approximately a 7 percent reduction since the 2013-2014 school year (CA SchoolDashboard, 2017) and a capacity of approximately 2,200 (Redwood City, 2010a).

Parks

As referred to in the CEQA Guidelines and as used by City staff, the terms "parks" and "parkland" are used in this EIR to refer to parks and other recreational facilities available to the general public, including publicly owned land provided and maintained for active recreational purposes, to distinguish them from public spaces and plazas, which can provide public gathering space, but do not provide distinctly recreational facilities for either children or adult active play. Likewise, the City defines "open space" as "publicly owned land specifically set aside for the preservation of natural resources,'" rather than for active recreation (Redwood City, 2010b).

Redwood City has approximately 228.12 acres of active developed parkland and approximately 700 acres of open space.[1] Parks in the sphere of influence area contribute an additional 7.5 acres, for a total of about 235.62 acres of developed parkland citywide.[2] Parkland is not evenly distributed throughout the City, and some areas have a relative “excess” of parkland when compared to other portions. The City has adopted an active park standard of 1,000 residents per 3.0 acres of active parkland (Redwood City, 2010a).

The City of Redwood City Parks, Recreation and Community Services Commission approved a Parks and Facilities Needs Assessment Study (*Needs Assessment*) which divided the City into seven planning areas (Redwood City, 2008). The Project site is part of the “East of US 101” planning area, which includes all areas east (north, as oriented in this Draft EIR) of US 101 (except Redwood Shores) in Redwood City and includes no park facilities. The nearest local parks to the Project site are Mezes Neighborhood Park and several downtown mini parks in the Downtown planning area, as well as Andrew Spinas Neighborhood Park and Hoover School Park in the Southeast planning area – all located within approximately 0.5 mile of the Project site, however there is no connectivity and the access is difficult from the east (north) side of US 101. The *Needs Assessment* identified the East of US 101 planning area as needing approximately 5.70 acres of parks to meet the City’s park standard of 3.0 acres of active parkland per 1,000 of

1 Public park and recreational facilities include community centers, trails, and swimming pools, which may be within City parks. Open space areas provide passive recreational opportunities, but have other primary purposes, such as habitat protection, that preclude the areas from being considered as active developed parkland.

2 Total excludes 43 acres of school related parklands since a wider public use of school parks is not formalized through a City-School District usage agreement, and therefore no certainty exists that school parks could continue to be relied upon in the long-term to help fulfill park and recreational demands of the City.

population. The City is currently below the standard at 2.68 acres per 1,000 of population. Redwood City Parks, Recreation and Community Services staff also indicate residents express significant desire for dog park facilities, sport fields, playgrounds and trails.

The *Needs Assessment* examined the recreation facilities provided by Redwood City in comparison with surrounding communities. Redwood City's 1.19 sports fields per 10,000 population is below the mean of 3.34 sports fields per 10,000 population (Redwood City, 2008). ("Needs Assessment" discussed further in *Regulatory Setting*, below.)

Trails and Open Space

The San Francisco Bay Trail (Bay Trail), a proposed 400-mile trail that would connect communities to each other and the Bay through nine counties and 47 cities, is in the vicinity of the Project site. The Association of Bay Area Governments (ABAG) has been overseeing planning and construction of the Bay Trail, in cooperation with local jurisdictions.[3] Within Redwood City, a major local gap in the Bay Trail exists in the vicinity east of the Project site - the Cargill Property across Seaport Boulevard through the bay-side industrial area and across Redwood Creek (Redwood City, 2010a).

Libraries

There are a total of four public libraries in Redwood City, which are funded and operated by the City. The Redwood City Public Library (RCPL) participates in the Peninsula Library System, which allows for seamless borrowing within the county. The closest library to the Project site is the Downtown branch at 1044 Middlefield Road, approximately one mile south of the Project site. The Downtown branch currently serves approximately 78,244 residents, and has 47,000 square feet of library space, and 145,000 volumes of materials. The recently renovated and expanded Fair Oaks Branch at 2510 Middlefield Road is also approximately 1.2 miles southeast of the Project site. City of Redwood City (2010a)

RCPL has requested funds in the 2020–2021 Fiscal Year City budget for capital improvements to study the future deficit in library services. RCPL gets approximately 93 percent of its funding from the City's general fund.

[3] According to ABAG, mid-term goals (to be built within the next 6-10 years) for the Bay Trail within the Project vicinity include: 2,466.7 feet of trail between Whipple Road and Bair Island Road, 1,541.8 feet of trail on Bair Island Road, and 10,724.1 feet of trail by the Cargill Levee between Seaport Boulevard and Bayfront Park. Long-term goals (to be built within the next 11-15 years) within the Project vicinity include: 2,455 feet by Redwood Creek, crossing between Bair Island Road and Blomquist, and 1,929.7 feet by Blomquist between Maple Boulevard and Seaport Boulevard. Overall, 19,117.3 feet (approximately 3.62 miles) still remains to be completed within Redwood City.

4.12.2 Regulatory Setting

Senate Bill 50 and California Government Code Section 65995

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), restricts the ability of local agencies to deny project approvals on the basis that public school facilities (classrooms, auditoriums, etc.) are inadequate. School impact fees are collected at the time when building permits are issued. According to California Government Code Section 65995(g)(3)(h), the payment of statutory school fees, which are required by SB 50 for all new residential and commercial/industrial development projects, is "deemed to be full and complete mitigation…of the provision of adequate school facilities." School impact fees are payments to offset capital cost impacts associated with new developments, which result primarily from costs of additional school facilities, related furnishings and equipment, and projected capital maintenance requirements. As such, agencies cannot require additional mitigation for any school impacts.

Government Code Section 65995(b)(3) requires the maximum square footage assessment for development to be increased every 2 years, according to inflation adjustments. On January 22, 2018 the State Allocation Board approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from $3.48 to $3.79 per square foot of assessable space for residential development of 500 square feet or more, and from $0.56 to $0.61 per square foot of chargeable covered and enclosed space for commercial/industrial development (California General Services, 2018).

Redwood City Parks, Recreation, and Community Services Strategic Plan 2004

The Redwood City *Parks, Recreation, and Community Services Strategic Plan* (Strategic Plan) provides a framework of principles and policies to help guide the Parks, Recreation and Community Services Department (Parks Department) in the proper direction. The Strategic Plan identifies the purpose, vision, and values the Parks Department uses, along with the goals and objectives.

Parks and Facilities Needs Assessment 2008

The *Needs Assessment* is an inventory and qualitative assessment of the City's current and anticipated needs for parks and recreational facilities. It identifies next steps to help the City expand and maintain its parkland. The *Needs Assessment* includes many specific recommendations that would help realize the goal of having 3.0 acres of parkland per 1,000 persons while also ensuring the appropriate distribution of such parklands throughout the City. The *Needs Assessment* includes recommendations for ongoing review and assessment of facilities and development/implementation of a long-range replacement plan.

Quimby Act: California Government Code Section 66477

California Government Code §66477, commonly known as the Quimby Act, allows cities to enact fees on new development to be used in the acquisition and/or preservation of park,

recreation, or open space facilities as well as improvements on those facilities. Current Redwood City park fees and dedication requirements intended to maintain the park standard are applied only to new residential development; a citywide Nexus Study to determine new commercial development's relationship to the park standard and fee/dedication needs has been completed, but the City has not adopted a park fee or dedication requirement for new commercial development (Redwood City, 2012).

Library

Chapter 16 of the City's Municipal Code establishes the Library Board and its powers and duties. The Municipal Code designates the Redwood City library as a free public library for the City.

Emergency Services Plan

The City's Emergency Services Plan outlines the organizational structure and chain of command for emergency operation procedures, and the functional responsibilities of the City's departments during an emergency. The Police Department, Fire Department, and Public Works Services Department are responsible for direct intervention in the event of a large-scale emergency. During a disaster, they are on the "front lines" to maintain public safety and provide infrastructure repair. The remaining City departments provide support functions based on their areas of expertise. The Emergency Operations Center (EOC) is operated by City staff.

Redwood City General Plan

The Redwood City General Plan's *Building Environment Element* and *Public Services Element* include the following policies about public services relative to the Project. These policies were adopted for the purpose of avoiding or mitigating an environmental effect. The consistency of the Project with relevant policies that are also considered land use policies are evaluated in Section 4.9, *Land Use and Planning*, in this chapter of the EIR. The policies directly applicable to public services and recreation are summarized as follows:

- ***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-1.3*:** Enhance street corridors, parkways, and public property between buildings to serve as functional recreation and green 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-3.2*:** Continue to build, renovate, and maintain parks and community facilities in a manner that is environmentally responsible.
- ***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.

- ***Policy BC 8.4*:** Ensure that City library facilities are equipped with the proper technologies and tools to support evolving ways of research and learning. Assist and support lifelong learning for adults through computer training, programs, and library collections.

The General Plan restates the City's commitment to providing adequate parkland and facilities. The above General Plan policies and related programs identified in the General Plan perpetuate and strengthen the City's goal of providing 3.0 acres of parkland per 1,000 persons. Although the General Plan land use map does not designate any new lands as parks, it includes programs that would implement the recommendations of the *Needs Assessment* (described above), which focus on parkland acquisition, operation and maintenance.

4.12.3 Project Baseline

Baseline conditions reflect the condition of the Project site as it existed at the time of the issuance of the Notice of Preparation of the EIR was issued on January 12, 2018. Specific conditions are described above in *Environmental Setting* and documented throughout.

4.12.4 Significance Criteria

Based on CEQA Guidelines Appendix G, a project would cause significant adverse impacts to public services and recreation if it would:

1) **Public Services**

   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. Police Protection
      2. Fire Protection
      3. Schools
      4. Parks
      5. Libraries
      6. Other public facilities

2) **Recreation**

   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.

   b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Approach to Analysis

This section addresses the potential public services effects on police and fire protection services, schools, parks use, libraries, and recreational facilities. No other public facilities are considered in this CEQA analysis, as no others are required to be analyzed.

The analysis in this section maintains the assumption that the new employees associated with the Project would be new workers in Redwood City, but does not assume that as a result of the new job would necessarily elect to relocate to Redwood City from outside the City, San Mateo County or the Bay Area.

The Project's contribution to cumulative impacts on public services and recreation would be considered significant if combined with other cumulative projects, its contribution to a significant cumulative effect (if one is found) is determined to be considerable.

4.12.5 Impacts of the Project

Impact PSR-1: The Project could result in an increase in calls for police services, but would not require new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives (Criterion 1a.1). (Less than Significant)

The Redwood City Police Department provides service from its central police station headquarters located at 1301 Maple Street, which is adjacent to the Project site, as well as from its Downtown substation. The Project could generate approximately 4,579 employees on the Project site, thereby prompting a potential increase in the demand for police services to the Project area due to increased human activity and structures on the Project site. Given the type of commercial office tenants that would occupy the proposed buildings in the proposed campus setting, and given the onsite amenities proposed for use by those employees, the increased employee population on the site could occur beyond typical daytime hours. It is also likely that the proposed commercial office development may have private security services typical of this type of land use and businesses likely to occupy the Project buildings.

There is no aspect of the proposed Project, specifically the new employee population and development on the site, that would result in a substantial increase in calls for police services. Therefore, the change with the Project would not warrant the construction of new or physically altered police facilities to maintain current service ratios, although additional staff or equipment may be warranted. The Redwood City Police Department is currently able to meet or exceed its established response time goal of five minutes or less for all emergency calls. The development of the Project would have a less-than-significant impact on police services.

Mitigation: None Required

Impact PSR-2: The Project could result in an increase in calls for fire protection and emergency medical response services, but would not require new or physically altered fire protection or emergency medical facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives (Criterion 1a.2). (Less than Significant)

The proposed Project could potentially increase demand for fire and emergency medical response services. The approximately 4,579 new employees and new commercial office uses that would occur with the Project could generate additional calls for fire and emergency medical response services due to increased human activity and structures on the Project site. As mentioned above, the proposed new employment population on the Project site could occur beyond typical daytime hours, given the nature of the development and proposed onsite amenities for Project employees.

During the building permit review phase, the City will consider the Project's compliance with all local and state fire and safety codes and requirements, including adequate water facilities and resources (see Section 4.13, *Utilities and Service Systems*, in this chapter of the EIR).

As indicated in the *Setting,* the Project would be served by Fire Station #9, approximately 1.6 miles south of the Project site and that also serves the Downtown area. Additional personnel or equipment based out of Station #9 may be required in the future in order to maintain acceptable service ratios or response times. As also previously mentioned in the *Setting*, the Redwood City Fire Department is currently able to meet or exceed their response time goal 85 percent of the time. There is no aspect of the proposed Project, specifically the new employee population and development on the Project site, that would substantially impair the City's ability to maintain that goal.

Overall, the effect of the Project does not represent new demand that would warrant the construction of new or physically altered facilities to maintain current service ratios, although additional fire staff or equipment may be warranted. The impact of the Project on fire protection and emergency medical response service would be less than significant.

Mitigation: None Required

Impact PSR-3: The Project could result in new students for local schools, but would not result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, to maintain acceptable performance objectives (Criterion 1a.3). (Less than Significant)

The Project is not expected to generate increased student population as a result of new employees of the new office uses. Therefore, the Project would not result in impacts requiring new school facilities. SB 50, allows the City to impose impact fees to offset school capital cost impacts associated with new residential and commercial/industrial development. As discussed in the *Regulatory Setting* in this section, the fees are considered full and complete mitigation of school facility impacts. The proposed Project would be required to pay fees towards new school facilities under SB 50. Therefore, the impact would be less than significant.

Several scoping comments received on this EIR identified the Project's potential impacts to schools as an area of concern. To quantify the potential number of new employees that would establish new households in Redwood City and generate new students in the RCSD and SUHSD would require speculation. Primary factors into how many new students might be generated by the Project include an understanding of the choices that new employees might make about relocating their existing households to Redwood City, solely as a result of becoming newly employed by the proposed Project; and the make-up of the new employee households since, for example, some portion of the new employees might share a single household with one or more other Project employees. Any number of the new employees may also move into existing homes being sold or vacated, and potentially replace existing students that move out of the area, or into newly constructed homes. Such choices cannot be known with reasonable certainty. As mentioned in the *Approach to the Analysis,* the analysis in this section maintains the assumption that new employees associated with the Project would be new workers in Redwood City, but the analysis does not assume that new workers would necessarily elect to relocate to Redwood City from outside the City, San Mateo County or the Bay Area specifically as a result of the new job. However, it is reasonable that some of the new employees already have homes in Redwood City and therefore are (or will be) potential generators of new students in the RCSD or SUHSD.

For the sole purpose of considering how many new school-age students could theoretically result from the proposed Project, a scenario that assumes 50 percent of the new employees (2,290 employees) would relocate to Redwood City and move into a newly-constructed home, 15 percent of which create a shared household (1,946 households with one Project employee), and factors in current state-established student yield rates, would theoretically and indirectly generate an estimated 973 grade school students (12.6 percent of RCSD total enrollment) and an estimated 389 high school students (4.4 percent of SUHSD total enrollment).[4] Presumably, these theoretical new households would be established throughout Redwood City, and therefore would distribute students over time throughout the approximately 14 RCSD grade schools and five SUHSD high schools located in Redwood City. Regardless of the influx of new students to the various schools, the SB 50 fees paid based on the theoretical 1,946 new households (or 2,043 new housing units), as well as on the actual office square footage of the proposed Project (which would address students generated from Project employees who would relocated to existing homes within Redwood City), would continue to be considered full and complete mitigation of physical school impacts.

In summary, the proposed Project would be required to pay fees towards school facilities under SB 50, which are considered full and complete mitigation of school facility impacts. Therefore, the impact is less than significant.

Mitigation: None Required

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[4] State of California Department of Education establishes student yield rates of 0.5 elementary student per units, and .02 high school students per unit. (CDE, 2018)

Impact PSR-4: The Project could increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities (Criterion 1a.4 and 2a.b). (Less than Significant)

It is unlikely that the employees generated by the Project would increase the demand for, or use of, nearby parks and recreational facilities to the Project. The Project includes a 35,000 square foot amenities building that will include on-site recreational facilities, including play courts (basketball, volleyball, etc.), fitness areas for individual training, as well as rooms for various fitness. Additional recreational uses, including bocci ball, sand volleyball and other multi-game courts, would be included in the lawn and open space areas in the central area of the Project site (see Figure 3-5, Illustrative Site Plan, and Figure 3-13, Landscape Concept Plan*,* in Chapter 3, *Project Description,* of this document). The Project would also facilitate access to nearby waterfront areas through the introduction and improvement of pedestrian and bicycle paths.

The proposed onsite active and passive recreational opportunities associated with the Project would reduce potential increased demand on existing nearby recreational facilities resulting from the new employees in the area. The City's applicable parkland dedication or in-lieu fee requirements would not apply to the Project since it does not involve residential uses. However, the provision of the outdoor recreational facilities described above would reduce the potential increase in the use of existing neighborhood and regional parks such that substantial and physical deterioration of facilities would occur, be accelerated, or cause the need for new or expanded facilities. The Project would have a less than significant impact on parks and recreation centers.

Mitigation: None Required

Impact PSR-5: The Project could increase the use of existing public library facilities, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities (Criterion 1a.5). (Less than Significant)

The Project will result in increased onsite employee population. As discussed in Impact PSR-3, this analysis can only speculate about the choices that new employees of the Project might make about relocating their existing households to Redwood City, solely as a result of becoming newly employed by the proposed Project; it is reasonable that some of the new employees already have homes in Redwood City and therefore are (or will be) potential generators of new library demand.

RCPL gets the majority of its funding from the City's general fund. Therefore, the Project would not result in the need for new or expanded library facilities due to the increased use by new employees of the Project. The impact would be less than significant.

Mitigation: None Required

4.12.6 Cumulative Impacts

Impact PSR-1.CU: The Project, in combination with other cumulative development in the vicinity of the Project site, would not contribute considerably to a cumulative impact to public services and recreation facilities. (Less than Significant)

The cumulative geographic context for public services and recreation considerations for development of the Project consists of the Project site in addition to all areas of the City, as public services and recreation facilities are provided citywide.

Cumulative projects considered are those imbedded in the growth forecasts in the countywide transportation model and the US 101/SR84 (Woodside Road) Interchange Improvement Project and other approved, pending, and reasonably foreseeable future projects citywide, as listed in Table 4.0-1 in this chapter of the EIR. The cumulative development would increase demand for police and fire protection services. These developments, however, would provide additional tax revenue and other development fees that would go toward paying for increased public services. Cumulative development, in combination with development of the Project would result in a less-than-significant cumulative impact on police and fire services.

Considering the existing educational facilities citywide and in the vicinity of the Project site, the Project, in combination with past, present and reasonably foreseeable future projects, would not result in the need for new or physically altered school facilities. Residential and office/industrial cumulative development would pay required SB 50 fees that would be considered complete fill and complete mitigation of physical school impacts

The Project proposes approximately one-acre of recreational facilities for onsite use by employees of its proposed commercial office uses. Given the proposed new on-site recreational facilities—indoor and outdoor—the employee population generated with the Project, combined with growth from other cumulative projects described above, would not result in the substantial or accelerated physical deterioration of existing facilities due to increased use or demand and cause a significant cumulative impact. Residential cumulative development will pay the City's applicable parkland dedication or in-lieu fee requirements. The Project would not have a cumulatively considerable contribution to the existing deficit of local-serving parkland per resident.

In summary, the effect of the proposed Project, in combination with other cumulative development, would not result in a cumulative impact on public services or recreation facilities. The impact is less than significant.

Mitigation: None Required

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4.13 Utilities and Service Systems

This section addresses potential impacts that development of the Project could have to public utility and service systems for water, recycled water, storm drainage, and solid and non-hazardous waste generation and disposal. Impacts related to electricity and natural gas supply and demand are discussed in this section and in Section 4.6, *Greenhouse Gas Emissions and Energy.*

4.13.1 Environmental Setting

Water

Regional Setting

Redwood City receives 100 percent of its potable water supply from the Hetch Hetchy, a part of the San Francisco's Regional Water System (RWS). The San Francisco Public Utilities Commission (SFPUC) manages this system. Hetch Hetchy is fed mostly from Sierra Nevada snowmelt but also includes rainfall and runoff collected in a number of reservoirs: Calaveras, San Antonio, Crystal Springs, San Andreas, and Pilarcitos. In addition to capturing runoff, these reservoirs provide storage for emergency water supplies. The remaining water supply into Hetch Hetchy comes from flows diverted from the Tuolumne River (which flows from the central Sierra Nevada to the Central Valley).

Municipal Water Supply

The Redwood City water system provides water to both Redwood City and portions of San Mateo County. This system covers approximately 17 square miles, generally bound by Interstate 280, Highway 101 and San Francisco Bay, Marsh Road and Whipple Avenue, in addition to the separate Redwood Shores area. The system has 13 turnouts from the five RWS / SFPUC pipelines located in Redwood City. There are also eight active permitting passages with the California Water Service Company, Mid-Peninsula Water District, and the City of Menlo Park. The potable water distribution system delivers water to 24 pressure zones through approximately 259 miles of pipelines, 12 active storage reservoirs, and 10 booster pump stations.

The City currently has a total storage capacity of 21.2 million gallons (MG) and is in the process of constructing additional system storage. Of the 10 booster pumps located throughout the City, 6 have permanent standby generators. The City also has four portable generators and a portable pump for emergency use. (City, 2018). The potable water supply is managed by the Redwood City Water Department. They water that the City obtains from the Hetch Hetchy does not require treatment by the City, and its guaranteed supply annually through its Individual Supply Guarantee (ISG) from the SFPUC is 10.93 mgd, or approximately 12,234 acre feet per year (af/yr)[1].

[1] "Acre foot" is a unit of measurement equal to the volume of water needed to cover one acre to a depth of one foot. It is equal to 93,500 cubic feet or 325,851 gallons.

Municipal Water Demand

In accordance with the State of California Urban Water Management Planning Act the City of Redwood City developed and adopted its 2015 Urban Water Management Plan (UWMP) in 2016(EKI, 2016). The purpose of the UWMP is to facilitate local and regional water planning activities and support the City's long-term water resource planning goals. The population projections outlined in the 2010 General Plan match the growth assumptions contained in the 2015 UWMP.

The City's total annual water demand in 2015 was 9,589 acre-feet, including both potable and recycled water, with an available capacity of 2,654 acre-feet remaining, per the UWMP.

The City has actively reviewed alternate water sources and methods to reduce its water demand and reliance on the RWS. The City does not include local groundwater as a source of supply in its 2016 UWMP; locally groundwater is not used as a source of municipal potable water supply due to water quality, quantity, reliability, and long-term production capacity concerns. Beyond groundwater, the City has incorporated extensive, active water conservation and recycling programs. The active measures include incentives and rebates for low-flow toilets and water efficient faucets, washing machines, shower heads, and irrigation methods. The recycling program includes a water treatment facility and series of distribution pipelines (see *Recycled Water* below).

Project Area Water Infrastructure

The Project vicinity is currently served by two water mains: 12-inch Asbestos Cement Pipes (ACP) in Blomquist Street and Seaport Boulevard, and an 8-inch ACP in Blomquist Street.

The size of municipal water systems is primarily determined by the need to meet fire flow. The California Fire Code sets the flow rate requirements (based upon the building construction type and floor area) measured at 20 psi residual pressure.

Recycled Water

The City of Redwood City has adopted a recycled water program to ensure prudent water use and ongoing water conservation. The program's implementation allows the shift away from using high-quality water for non-potable uses. In 2008, the City adopted a Recycled Water Use Ordinance. The Ordinance is broken into both "Required" and "Encouraged" use categories, in terms of the types of projects and activities. The recycled water system is owned and operated by the City. Silicon Valley Clean Water (SVCW, formerly known as South Bayside System Authority or SBSA) and Redwood City entered into agreements for the production and distribution of recycled water.

Phase I of the City's recycled water plan has been implemented and recycled water is served to customers east of Highway 101 in Redwood Shores, the Greater Bayfront Area, and the Seaport Area. Phase II of the City's recycled water plan is currently underway, and will bring recycled water pipes west of US 101 towards Downtown. The recycled water system has been designed to

deliver up to 3,238 af/yr by 2030. Current demand on the recycled water system is approximately 750 af/yr (Redwood City, 2015a).

The Project site is within the adopted Recycled Water Service Area (Inner Harbor Area). The SVCW treatment plant supplies recycled water to the Inner Harbor neighborhood via an existing 24-inch diameter recycled water main in Blomquist Street.

Wastewater Collection and Treatment

Municipal Wastewater System

The City wastewater system is composed of treatment and collection components. The Redwood City Public Works Department is responsible for the operation and maintenance of the sanitary sewer collection system serving Redwood City. The Silicon Valley Clean Water (SVCW) Wastewater Treatment Plant (formerly referred to as South Bayside System Authority (SBSA) provides wastewater treatment and maintains the force main that conveys wastewater from the Maple Street Pump Station to the treatment plant. The City's sewer collection system consists of approximate 192 miles of gravity and force mains. Most of the City's sewer flows are directed via gravity to the Maple Street Pump Station, which is then transmitted to and treated in the SVCW Wastewater Treatment Plant in Redwood Shores, and eventually discharged into the San Francisco Bay. The Maple Street Pump Station is under the jurisdiction of SVCW, which pumps from the Maple Street Pump Station to its transmission force main (48-inch to 54-inch diameter pipes) to the Wastewater Treatment Plant located in Redwood Shores.

Once treated, the effluent is discharged through a 66-inch diameter pipeline to an outfall diffuser (about a mile offshore) into a deep-water channel of the San Francisco Bay. Under SVCW's 10-year capital improvement plan to replace and upgrade aging infrastructure, including the replacement of all four of its pump stations with three new stations (consolidating two of the stations into one). SVCW's proposed Pump Station No. 2 (the Maple Street Pump Station) will include a screening facility to handle material from the Maple Street Correctional Center. The new pump stations combined with the new force main will be designed to convey the wastewater through the year 2040.

Wastewater Collection System Capacity

The City's current General Plan indicates plans for implementing current capital improvement projects that range from rehabilitation of existing pump stations to replacement of aging sewer infrastructure (described above). The City's 2013 Updated Sanitary Sewer Plan (Update Plan) confirmed that the City's collection system has adequate capacity for the future Peak Dry Weather Flow. Eighteen (18) capacity improvements/projects were identified and prioritized as required to eliminate the sewer system surcharge which occurs during selected design storms – Peak Wet Weather Flow (PWWF) conditions. Of those proposed improvements the City has completed the highest priority capacity project and conducts annual flow monitoring to assess pipeline conditions and troubleshoot for potential inflow and infiltration problems.

The wastewater treatment plant has an operating capacity of 29 million gallons per day (mgd) for average dry weather flow. The plant is permitted by the RWQCB to discharge 29 mgd Average

Dry Weather Flows (ADWF) into San Francisco Bay. The current permitted PWWF capacity of the SVCW facility is 71 mgd (Redwood City, 2010). Redwood City has been allocated about 13.8 mgd of ADWF capacity at the SVCW wastewater treatment plant. Redwood City has been allocated 30.5 mgd of PWWF treatment capacity at the SVCW treatment plan. The SVCW facility currently has a PWWF capacity of 71 mgd for all of its member agencies.

Project Area Wastewater Infrastructure

The sewage generated in the Project area is collected and conveyed by gravity collector and trunk lines, The Project vicinity includes an existing 8-inch vitrified clay pipe (VCP) gravity mains located beneath Blomquist Street. This gravity main leaves Blomquist Street and continues south through an easement on the Project site and under Highway 101. Also, an existing 10-inch ACP force main runs in Seaport Boulevard to Blomquist Street and into the Maple Street Pump Station. As part of the County Correctional Facility project, a portion of the 10-inch ACP force main in Maple Street has been replaced with a 20-inch gravity main.

Storm Drain System

The stormwater infrastructure in the Project area includes a combination of overland flow, gravity mains, force mains, and pump stations. Pumping is required due to the combination of tidal action and the low elevation.

The public storm drain system is owned, operated and maintained by the City of Redwood City. The City storm drain system adjacent to the site consists of (1) an 8-inch RCP storm drain line in Blomquist Street; a 24-inch RCP storm drain line that increases to 33-inch RCP in the 10-foot wide City storm drain easement that runs north to south through the Project site; a 39-inch RCP force main along the westerly property line within a City storm drain easement; and the Oddstad Pump Station. (Connell, 2018)

The system collects runoff from the Project site and Blomquist Street and conveys it to the Oddstad Pump Station, which is located in the southwest corner of the site. In addition, the pump station also collects runoff from the Oddstad Office Park on the south side of Highway 101. The pump station discharges runoff via a 39-inch force main into Steinberger Slough, which flows to the San Francisco Bay. The force main is located within a City storm drain easement on the south side of the Project site. Redwood Creek and Steinberger Slough are tidal. However, since the City storm drain system is pumped into the creek and the slough, the piped storm drain system around the site is not tidal. Pumping stormwater out of the Project area is required due to the combination of tidal action of Redwood Creek and Steinberger Slough and the low elevation of the area. The Oddstad Pump Station has three pumps (one 3,600 gpm and two 18,200 gpm). The other portion of the site is directed to the disconnected storm system in Seaport Boulevard which directs runoff to the Seaport Pump Station. The Project will need to install stormwater mains in Seaport Boulevard to make the connection to this stormwater main. (Connell, 2018)

Solid Waste

Service, Capacity and Generation

Recology San Mateo provides solid waste collection, recycling, transportation, and disposal services to Redwood City. Residential and commercial solid waste from Redwood City is taken to the Shoreway Environmental Center and transfer station located on Shoreway Road in San Carlos. Shoreway Facility accepts Class III wastes (non-hazardous solid waste), and the total annual waste disposal for Redwood City in 2017 was estimated at 65,237 tons (CalRecycle, 2018a). The majority of solid waste from the City is transferred to Ox Mountain Sanitary Landfill, a Class III landfill near Half Moon Bay. The Ox Mountain facility is estimated to have a remaining capacity of at least 22 million cubic yards or 36 percent of its total potential capacity (CalRecycle, 2017). The facility is currently permitted to operate through May 2022, the closure date is subject to adjustment and extension under the direction of Cal Recycle, the State's waste reduction and management agency. The Ox Mountain Landfill has a permitted through-put capacity of 3,598 tons per day. (CalRecycle, 2018c)

Solid Waste Generation, Recycling and Diversion

As indicated above, Redwood City as a whole generated approximately 65,237 tons of solid waste in 2017. In 2005, Redwood City adopted a waste reduction and recycling directive "to make resource conservation an integral part of the physical operation of the waste reduction and recycling programs...". Recyclable household waste, as well as compostable plant and food materials, are picked up every week at residential curbsides; also, there are a variety of recyclable material drop-off locations in Redwood City and San Mateo County. Redwood City, along with a number of local organizations, also sponsors residential and commercial recycling information and reduction programs.

Power, Gas and Telecommunications

The topics addressed in this section of this *Environmental Setting* are included for the reader's information about other physical utilities in the Project vicinity. The significance criteria for utilities and service systems (see Section 4.13.4) do not address power, natural gas or telecommunications. Relevant factor of energy/power usage is addressed in Section 4.6, *Greenhouse Gas Emissions and Energy.*

Power to the City of Redwood City is provided by Pacific Gas & Electric Company (PG&E), a natural gas and electric company. Electricity is generated from hydroelectric, fossil fuels, nuclear, wind, and geothermal facilities. Electrical transmission lines are generally located in the public right of way. Per the City's 2010 General Plan, as of 2008, no new major transmission lines are planned in Redwood City. The Project area appears to be serviced by underground facilities.

The City's natural gas is supplied by three main pipelines. One runs parallel to Highway 101 and two lines run adjacent to Highway 280. Within the Project vicinity, the gas lines are limited.

Broadband service is provided by CableCom of California, a national provider of construction, technical, and engineering services in the telecommunications field. However, fiber optic/cable lines are not provided in the Project site.

Overall, the Project site would receive service through the extension and/or upgrades in the existing system.

4.13.2 Regulatory Setting

Water

U.S. Safe Drinking Water Act

The U.S. Safe Drinking Water Act (SDWA), established on December 16, 1974, is the main federal law that ensures the quality of drinking water by setting standards for drinking water quality and by providing guidance to the states, localities, and water suppliers who implement those standards.

Senate Bill 610 and Senate Bill 221

The purpose and legislative intent of Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) is to preclude projects from being approved without specific evaluations being performed and documented by the local water provider that indicate that water is available to serve the project. SB 610 primarily affects the Water Code, and SB 221 principally applies to the Subdivision Map Act. SB 610 requires the preparation of a Water Supply Assessment (WSA) for large-scale development projects.[2] The WSA evaluates the water supply available for new development based on anticipated demand. For the broad range of projects that are subject to this law, the statutory WSA must be requested by the lead agency from the local water provider at the time the lead agency determines that an Environmental Impact Report (EIR) is required for the project under CEQA. The water agency must then provide the assessment within 90 days (but may request a time extension under certain circumstances). The WSA must include specific information including an identification of existing water supply entitlements and contracts. The governing board of the water agency must approve the assessment at a public hearing.

SB 610 describes the UWMP that can be used by a water supplier to meet the standards of the statute and to ensure near- and long-term viability and reliability of local water supplies. The City's 2015 UWMP was approved by the City Council and forwarded to the California State Department of Water Resources (DWR).

[2] All projects that meet any of the following criteria require a WSA: 1) a proposed residential development of more than 500 dwelling units; 2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 ft^2 of floor space; 3) a proposed commercial office building employing more than 1,000 persons or having more than 250,000 ft^2 of floor space; 4) a proposed hotel or motel, or both, having more than 500 rooms; 5) a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; 6) a mixed-use project that includes one or more of the projects specified in this subdivision; or 7) a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

SB 221 requires the local water provider to provide "written verification" of "sufficient water supplies" to serve the project. SB 221 applies only to residential projects of 500 units or more (infill or low-income or very-low-income housing subdivisions are exempt) and requires the land use planning agency to include as a condition of approval of a tentative map, parcel map or development agreement a requirement that "sufficient water supply" be available. Sufficiency under SB 221 differs from SB 610 in that it is determined by considering the availability of water over the past 20 years; the applicability of any urban water shortage contingency analysis prepared per Water Code Section 10632; the reduction in water supply allocated to a specific use by an adopted ordinance; and the amount of water that can be reasonably relied upon from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer. In most cases, the WSA prepared under SB 610 would meet the requirement for proof of water supply under SB 221.

Senate Bill 365

Existing provisions of the California Water Code declare that the use of potable water for certain non-potable uses "is a waste or an unreasonable use of water." SB 365 amends and expands the Water Code to strengthen the provision that the use of potable water for the irrigation of residential landscaping, floor-trap priming, cooling towers, or air-conditioning devices, is wasteful and unsound if reclaimed water suitable for these purposes is available. SB 365 also gives the power to any public agency, including a State agency, city, county, district, or any other political subdivision of the State, to require the use of reclaimed water for these purposes if certain conditions are met. The conditions that must be met are:

- Reclaimed water meeting the requirements of existing law (Section 13550 of the Water Code) is available to the user;
- The use of reclaimed water does not cause any loss or diminution of any existing water right;
- Public health concerns regarding exposure to mist or spray must be addressed, if appropriate; and
- The water user must prepare an engineering report pursuant to Title 22 regulations governing the use of reclaimed water.

The requirements of the law are applicable to all new industrial facilities and subdivisions for which the Department of Health Services has approved the use of reclaimed water, and for which a building permit is issued on or after March 15, 1994; or, if a building permit is not required, new structures for which construction begins on or after this date.

Assembly Bill 901

Assembly Bill 901 (AB 901) requires the urban water management plan to document the quality of a supplier's available water source(s) and provide an assessment of the ways in which water quality affects its water management strategies and supply.

Assembly Bill 325

Assembly Bill 325 (AB 325), the Water Conservation in Landscaping Act, directs local governments to require the use of low-flow plumbing fixtures and the installation of drought-tolerant landscaping in all new development. Pursuant to the Act, the Department of Water Resources developed a Model Water Efficient Landscape Ordinance that took effect in Redwood City as of January 1, 2010, and would apply to the proposed project.

State Health and Safety Code Section 64562

Section 64562 of the California Health and Safety Code requires each public water system to have sufficient water available from its water sources and distribution reservoirs to supply adequately, dependably, and safely the total requirements of all its users under maximum demand conditions before an agreement can be made to permit additional service connections to that system.

Water Code Sections 10608 et seq. ("SB 7" or "SB X7 7")

Water Code Sections 10608 require urban retail water suppliers to set and achieve water use targets that will help the state achieve 20 percent per capita urban water use reduction by 2020.

Redwood City Water System Regulations

Chapter 38 of the Redwood City Code sets forth regulations regarding the water system serving the City of Redwood City and other areas outside City limits. The chapter establishes water service areas and limits allowable connections that cross service area boundaries. This chapter also establishes fees for water service and for new connections, including a facilities fee to provide for the use and construction of existing and future water system capital facilities (Section 38.14).

Redwood City Recycled Water Ordinance

Chapter 38, Article VIII of the Redwood City Code outlines local regulations regarding the use of recycled water. Section 38.52 sets forth required usage of recycled water within a defined "Recycled Water Service Area", the extent of which is subject to periodic update by resolution of the City Council of Redwood City. The ordinance requires use of recycled water in a variety of existing and new land uses/developments. Within the recycled water service area, new commercial, industrial, and institutional and multifamily residential projects must use recycled water for landscaping, and must also install a dual plumbing system so that recycled water can be utilized for restroom facilities. In addition to these mandatory uses, Section 38.53 sets forth a number of voluntary uses inside and outside of the Recycled Water Service Area for commercial, residential, institutional, and governmental uses.

Wastewater Collection and Treatment

Federal and State Laws

Federal and state laws relating to wastewater primarily focus on the regulation of pollutant discharges that could contaminate surface waters or groundwater. As such, the federal Clean Water Act and National Pollutant Discharge Elimination System (NPDES), as well as the state

Porter-Cologne Water Quality Control Act, all regulate wastewater treatment and the discharge of treated effluent. (See Section 4.8, *Hydrology and Water Quality*, *Regulatory Setting*).

City of Redwood City Code, Chapter 27

Chapter 27 of the Redwood City Code establishes standards, conditions, and requirements related to the use of the City's sanitary sewer facilities. The Chapter establishes allowable limits for discharge into the sanitary sewer facilities, including limits on the quantity and composition of discharged wastewater. The Chapter also establishes fees for use and for the development of capital facilities related to wastewater.

Solid Waste

Assembly Bill 939

Assembly Bill 939 (AB 939), enacted in 1989 and known as the Integrated Waste Management Act, requires each city and/or county to prepare a Source Reduction and Recycling Element to demonstrate reduction in the amount of waste being disposed to landfills, with diversion goals of 50 percent by the year 2000. Diversion includes waste prevention, reuse, and recycling. Senate Bill (SB) 1016 revised the reporting requirements of AB 939 by implementing a per capita disposal rate based on a jurisdiction's population (or employment) and its disposal.

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 required cities to divert 25 percent of their solid waste from landfills by 1995, and 50 percent by the year 2000. As noted above, Redwood City was diverting approximately 61 percent of its waste stream by 2006. The CIWMB works with municipalities to help improve recycling programs. The State generally places the burden of responsibility for waste stream reduction on local municipalities (i.e., cities and counties), and Redwood City has met the CIWMD requirements while incorporating expanded recycling requirements and policies into its General Plan.

Redwood City General Plan

The *Built Environment Element* of the Redwood City General Plan includes the utilities and service system policies below, which relate to the proposed Project and were adopted for the purpose of avoiding or mitigating an environmental effect issues. Policies listed below that are also considered land use policies are addressed in Section 4.9, *Land Use and Planning,* in this chapter of the EIR.

- ***Policy BE-40.2*****:** Maintain the city's water system to ensure adequate fire flow.
- ***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.
- ***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.

- ***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-43.2*:** Require new buildings, particularly taller buildings, to be designed with sufficient space to accommodate wireless communications equipment.
- ***Policy BE-44.2*:** Continue to require the placement of utilities underground with new development.
- ***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.

4.13.3 Project Baseline

Baseline conditions reflect the condition of the Project site as it existed at the time of the issuance of the Notice of Preparation of the EIR on January 12, 2018. Specific conditions are described above in *Environmental Setting* and documented various infrastructure reports cited throughout this section, including the *Harbor View Project Utility Feasibility Study* (BKF, 2018).

4.13.4 Significance Criteria

Based on CEQA Guidelines Appendix G, a project would cause significant adverse impacts to public utilities and service systems if it would:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

d) Not have sufficient water supplies available to serve the project from existing entitlements and resources, or if new or expanded entitlements are needed;

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

f) Be served by a landfill without sufficient permitted capacity to accommodate the project's waste disposal needs; or

g) Not comply with federal, State and local statutes and regulations related to solid waste.

Approach to Analysis

Increases in population and land use changes specific to the proposed Project are estimated and factored into the evaluation of the Project's potential effects on utilities and service systems. The analysis of the Project in this section relies largely on the *Inner Harbor Specific Plan Utilities Engineering Report* (West Yost, 2015) and from the *Utility Feasibility Study* (BKF Engineers, 2018). Further engineering analyses will be required during the design phase of the Project. The analyses may include additional calculations and modeling to confirm the slope of the existing storm drain pipe that the Project would replace and relocate in the southwest corner of the Project site (as described in Impact HYD-4 in Section 4.8, *Hydrology and Water Quality,* in this chapter of the Draft EIR); use of the City's computer model of the sanitary sewer system to verify the proposed sanitary sewer pipe sizes (Impact UTIL-1 in this section); and a determination whether to connect to existing water lines in Blomquist Street or Seaport Boulevard to ensure adequate fire flows, among other possible final design and engineering analyses.

It is not anticipated that the additional engineering analyses or field studies would be substantially different from the work conducted to date based on reliable information from City reports and qualified engineering consultants. Moreover, conditions and engineering estimates presented in the 2015 West Yost report and 2018 BKF study are suitable for determining the environmental effects in this Draft EIR. All improvements are assumed to be implemented in accordance with all applicable City Standards and Guidelines.

4.13.5 Impacts of the Project

Wastewater Treatment Demand and Facilities

Impact UTIL-1: The Project would not exceed the wastewater treatment requirements of the San Francisco Regional Water Quality Control Board or result in a determination that new or expanded wastewater treatment facilities would be required (Criteria a, b and e). (Less than Significant)

Capacity

The proposed new office campus will increase in the demand for wastewater treatment. The existing sewage generation (indoor and irrigation) for the Project site is 16,957 gpd (indoor) and 6,828 gpd (irrigation). The Project would have a daily sewage generation of approximately 158,205 gpd (549 gpm peak flow), thereby increasing sewage generation by approximately 142,104 gpd (BKF Engineers, 2018).

Redwood City has been allocated about 13.8 mgd of ADWF capacity at the SVCW wastewater treatment plant. Therefore, the City's available treatment capacity is adequate to meet the estimated net increase from the Project, and no new facilities are required to ensure adequate capacity. Also, the Project will pay the required sewage mitigation fee required for projects that increase sewage generation from existing conditions.

Infrastructure

As discussed in the *Environmental Setting* in this section, wastewater flows are defined as average dry weather flow (ADWF) and peak wet weather flow (PWWF). ADWF is the average flow that occurs on a daily basis with no evident reaction to rainfall. PWWF is the highest measured hourly flow that occurs during wet weather. Wastewater flows can vary with precipitation levels, as rainwater can enter the wastewater collection system through infiltration and inflow (I/I) during significant rain events.

Due to I/I, Redwood City has exceeded its PWWF capacity in the past. A methodology to reduce inflow and infiltration (I/I) by pipe replacement was determined. Applying this methodology to the proposed Project, the Project applicant shall reduce I/I to offset increased sewer demand from the Project by replacing aged sewer mains or pay an equivalent in-lieu fee. The length of pipe replacement required or the amount of fee will be based on the Project's sewage generation projection (Attachment L of the City's Engineering Standards).[3]

Consistent with the City's methodology, the Project applicant would be responsible for the cost of analysis, design, and construction of all necessary upgrades to or replacement of sewer collection and transmission to adequately serve the project, in accordance with City Standards and Guidelines. Upgrades include the installation and relocation of pipes around and downstream of the Project site. Onsite, the Project proposes to relocate an existing 10-inch sanitary sewer pipe that currently runs through the footprint of two of the proposed office buildings.

Additionally, the East 101 Fair Share Infrastructure Area contemplates, as part of new regional improvements, upsizing of the sewer main along Blomquist Street. to provide additional sewer collection capacity for the City. The improvement would involve upsizing the 8-inch VCP gravity main on Blomquist Street to a 10-inch PVC gravity main. The proposed Harbor View Project applicant would be responsible to contribute its fair share to these improvements as required by the City's Engineering & Transportation Division.

Moreover, the potential effects that could occur during the construction necessary to construct the aforementioned improvements and relocate existing infrastructure onsite, and/or connect the Project to existing infrastructure onsite, have been thoroughly analyzed in several other section of this Draft EIR analysis chapter, and mitigation measures are identified to reduce potential construction impacts to less than significant. These include mitigation measures for construction period noise; emissions from construction equipment, earth movement and dust; and construction traffic.

Summary

In summary, the City's available treatment capacity is adequate to meet the estimated net increase from the Project. With the replacement of aged sewer mains or payment of an equivalent in-lieu fee; contribution of its fair share to the East 101 Fair Share Infrastructure Area, the proposed improvements within the Project site; adherence to the regulatory requirements described above

[3] For parcels within Redwood City but connecting to County owned and maintained sewer, an I/I in-lieu fee may be collected by Redwood City if the County does not require main replacement or collect and in-lieu fee.

and construction-related mitigation measures; the construction of new or expanded wastewater treatment facilities required for the Project impact would be less than significant.

Mitigation: None Required

Water Demand and Facilities

Impact UTIL-2: The water demand generated by the Project would not exceed water supplies available from existing entitlements and resources or require or result in the construction of new water treatment facilities or expansion of existing facilities (Criteria b and d). (Less than Significant)

Demand / Supply

Based on the 2018 report prepared by BKF Engineers, the existing water demand (domestic and irrigation) for the site is 27,506 gpd. Under Project conditions, with the connection to recycled water, the proposed water demand would be approximately 33,263 gpd and 154,339 gpd of recycled water, for a total water demand of 187,602 gpd. This would increase the potable water demand by approximately 5,757 gpd. The Project will also be required to meet the required fire flow velocities and flow durations pursuant to current fire code (BKF Engineers, 2018) and pursuant to Redwood City Engineering Standards. Further, the City is not currently constrained in supplying additional recycled water supplies to customers (Redwood City, 2015b).

A WSA was conducted but not approved for the 2015 Harbor View Project (included as Appendix I to the 2015 *Inner Harbor Specific Plan and Harbor View Projects Draft EIR*). The WSA was based on a net increase of 5,830 gpd (compared to 5,757 gpd with the currently proposed Project). The 2015 WSA determined that the City has sufficient water to meet the expected future water demands of the Project. The proposed Project has a total potable water demand of approximately 36.4 af/yr, which fits within the development projections established in Redwood City's 2015 UWMP. Therefore, the water demand of the Project would not exceed existing water supplies and the impact would be less than significant.

Infrastructure

This discussion addresses whether the Project would require or result in the construction or expansion of new water treatment facilities. Site development of the Project would involve the installation of water line facilities on site and the connection of those lines to the existing water supply mains (either in Blomquist Street or Seaport Boulevard, BKF, 2018). The Project site is located within the City's recycled water area and would therefore also connect recycled water to irrigation systems and dual plumbing installed in buildings to provide recycled water to non-potable fixtures (i.e., toilets, urinals, hose bibs, etc.).

New regional water storage improvements are expected to provide a sufficient water storage/ supply for the City. These improvements include two new water storage tanks: one with 3.3 MG capacity and one with 3.0 MG capacity within the East 101 Fair Share Infrastructure Area. Blomquist Street, west of Seaport Boulevard near the Project site, is one of the proposed locations

for the 3.0 MG tank that will provide storage for emergencies. Additional regional water transmission improvements within the East 101 Fair Share Infrastructure Area are expected to provide additional transmission capacity by upsizing the potable water main in Blomquist Street to a 24-inch high-density polyethylene (HDPE) pipe, from Bair Island Road to Seaport Boulevard. The Project sponsor will be required to contribute its fair share to these improvements.

As discussed in *Approach to Analysis* above*,* and as is required for larger projects, the proposed Project's potential effects on existing pipe capacities, emergency water storage tank requirements, and pump station capacity would need to be evaluated using the City's computer water model and design standards. However, preliminary Project-specific engineering studies available for this analysis address these considerations, and all improvements will be implemented in accordance with Redwood City's Standards and Guidelines. In addition, the Project's potential fair share/upgrade/replacement options would be estimated and evaluated in accordance with the City's methodology. Therefore, the Project applicant would be responsible for the cost of analysis, design, and construction of its fair share of the new 3.0 MG water tank, its associated land, and water transmission improvements, in accordance with the East 101 Fair Share Infrastructure Area. The Project itself would not result in the need for new or expanded water treatment facilities although it must contribute a fair share to its implementation pursuant to the Fair Share Infrastructure Area. Therefore, the impact is less than significant.

Mitigation: None Required

Stormwater Drainage Facilities

Impact UTIL-3: The Project would require or result in construction of new stormwater drainage facilities or expansion of existing facilities, but the construction of which would not cause significant environmental effects (Criterion c). (Less than Significant)

The Project would increase the existing area of impervious surface on the site from 63 percent to 75 percent, potentially increasing stormwater flow, as discussed in Section 4.8, *Hydrology and Water Quality,* in this chapter of the Draft EIR (BKF, 2018). The Project site is currently served by all main utility infrastructure, including stormwater drainage facilities. Site development would involve relocation of existing stormwater drains that currently exist where a new building is proposed and improvement to the Oddstad Pump Station. Development of the Project would connect to and improve the existing infrastructure onsite with some increased capacities and design of the infrastructure would be required to meet minimum standards, including the City's Stormwater Management and Discharge Control Program (SMDCP). As discussed for Impact HYD-4 in Section 4.8, *Hydrology and Water Quality*, in this chapter, the proposed Project would relocate approximately 334 linear feet of existing storm drain pipe that exists where a portion of proposed Parking Structure A would be located. Also, as discussed for Impact HYD-5 in that same section of this chapter, the proposed Project is required to implement Mitigation Measure HYD-5 that requires installation of a new redundant duty pump to increase the Oddstad Pump

Station capacity. The Project will also install stormwater mains in Seaport Boulevard to make the connection to the Seaport Pump Station. (Connell, 2018)

Existing regulatory requirements and other mitigation measures in this Draft EIR address the potential effects that may be associated with the construction of these stormwater drainage improvements.

Implementation of the Stormwater Pollution Prevention Plan (SWPPP) at the Project site would prevent significant construction-related impacts to water quality (also described in Section 4.8 in this chapter). The SWPPP ensures that all construction activities include the implementation of best management practices (BMPs) that minimize the volume of offsite discharge of sedimentation and other pollutants. Moreover, the potential effects that could occur during the construction necessary to connect the project to existing infrastructure onsite have been thoroughly analyzed in these respective sections of this Draft EIR analysis chapter, and mitigation measures are identified where warranted. This includes factors of construction period noise; emissions from construction equipment, earth movement and dust, and water quality; and construction traffic. Based on the improvements to the Project site and the adherence to the regulatory requirements described above, the construction of new or expanded stormwater facilities would have a less-than-significant environmental impact.

Mitigation: None Required

Solid Waste Services

Impact UTIL-4: The Project would not violate applicable federal, state, and local statutes and regulations related to solid waste; or generate solid waste that would exceed the permitted capacity of the landfills serving the area (Criteria g and h). (Less than Significant)

The Project would develop 1,179,748 square feet of office and related amenity uses, thereby prompting a potential increase in the demand for solid waste services. Based on an estimated "per office area" solid waste generation rate, the Project could generate approximately 7,078 lbs/day of solid waste that would go to a landfill.[4] As stated above, the Ox Mountain Landfill is currently permitted to operate through January 2022 and has approximately 22 million cubic yards or approximately 80 percent of its total potential capacity remaining. The Project's estimated solid waste generation is less than one percent of the daily permitted throughput for the Ox Mountain facility. Therefore, the Project would not cause the permitted landfill capacity to be exceeded. Nor would the Project impede the ability of the City to meet waste diversion requirements or cause the City to violate other applicable federal, state, and local statutes and regulations related to solid waste. Further, Recology of San Mateo County would provide recycling services to the

[4] Solid waste generation rates for office use is estimated at 0.006 pounds/square foot/day. The rate does not distinguish between waste that is disposed of and waste that is recycled (CalRecycle, 2018a).

Project site, which will contribute to a reduction in solid waste generated by proposed development. The impact is less than significant.

Mitigation: None Required

4.13.6 Cumulative Impacts

Impact UTIL-1.CU: The Project, in combination with cumulative projects in the vicinity of the Project site, would not result in cumulative impacts to utilities and service systems. (Less than Significant)

The cumulative geographic context for utilities and service systems considerations for development of the Project consists of the Project site in addition to all areas of the City, as utilities and service systems are provided citywide.

Cumulative projects considered are those in the Project vicinity that would also involve construction activity, including those in the development forecasts conducted for this EIR based on the countywide transportation model and the US 101/SR84 (Woodside Road) Interchange Improvement Project and other approved, pending, and reasonably foreseeable future projects citywide, and several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan (see Section 4.0.4, *Cumulative Analysis,* in this chapter for detail). The cumulative development projects would increase demand for water and wastewater conveyance, storage and supply. These developments, however, would provide additional tax revenue and other development fees that would go toward paying for increased utilities and service systems. Also, adherence to the General Plan policies could reduce the potential for significant impacts. Further, improvements discussed throughout this chapter result in improved capacity and conveyance of utilities and service systems, infill capacity. Overall, cumulative development, in combination with development of the Project would result in a less-than-significant cumulative impact on utilities and service systems. The effect of the development of the Project, in combination with other cumulative development, would not be cumulatively significant.

Mitigation: None Required

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4.14 Transportation and Traffic

This section describes existing and projected future transportation conditions within the Project site vicinity, identifies the potential impacts of the Project, and recommends mitigation measures for identified significant impacts. The analysis methodology, environmental setting, and regulatory setting are described in the following sections.

4.14.1 Analysis Scope and Methodology

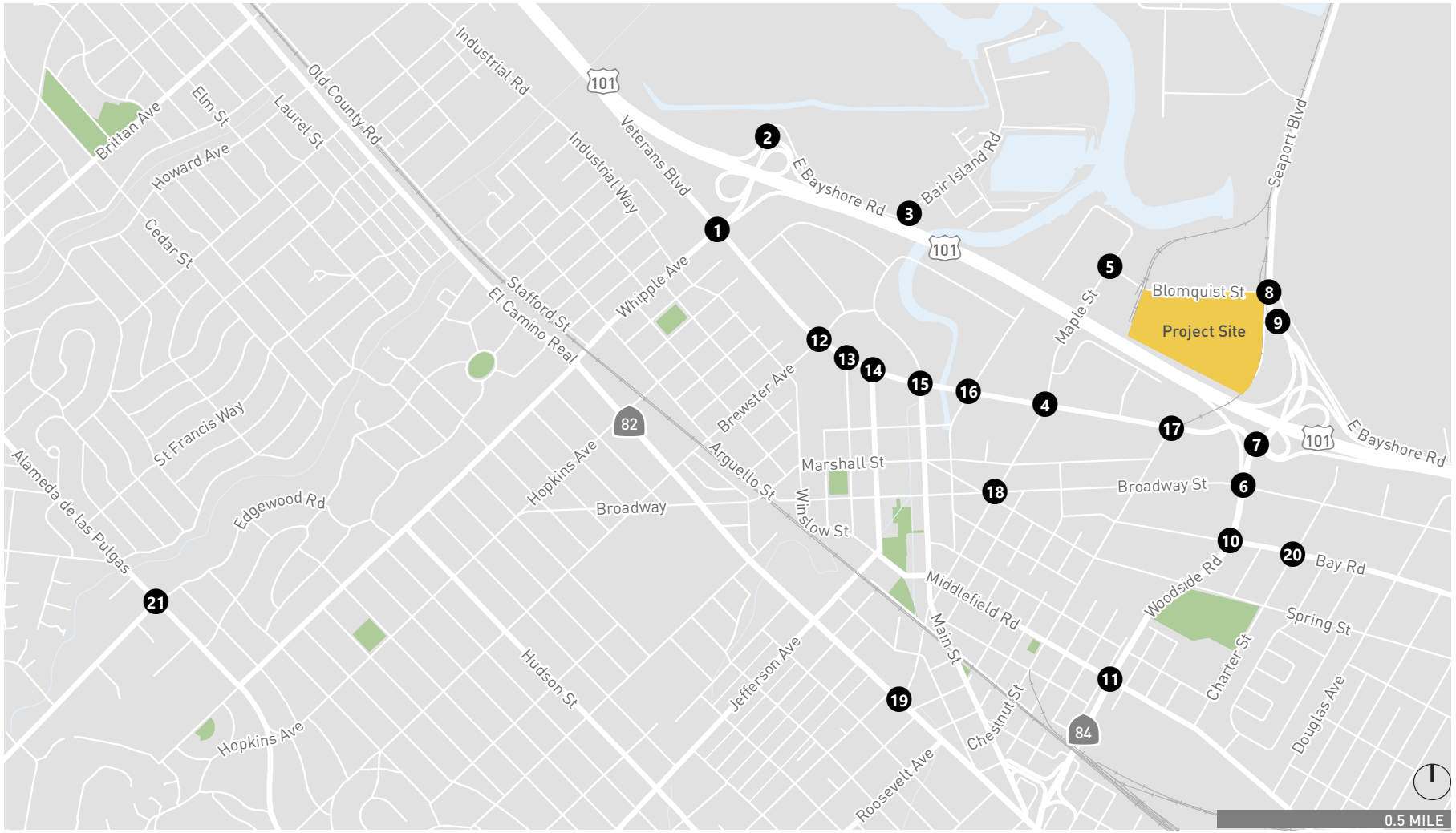
The analysis scope presented in this chapter and all methodologies herein were reviewed and approved by Redwood City staff. The following subsections outline the analysis approach for traffic operations. The approach for other transportation issues are presented later in this section.

Study Locations

This section evaluates the impacts of the Project on key roadway facilities, including 21 intersections, three freeway segments, and freeway ramps at two interchanges. The study area for the traffic analysis was selected based on local traffic patterns, the amount of Project-generated traffic and input from local authorities to capture the roadway facilities where motorists are likely to experience impacts due to buildout of the Project. The study intersections and freeway mainline segments and ramps are listed below and shown on **Figure 4.14-1**. All study intersections are controlled by a traffic signal unless noted.

Study Intersections:

1. Veterans Boulevard/Whipple Avenue
2. Whipple Avenue/US 101 Northbound Off-Ramp
3. East Bayshore Road/Bair Island Road (Roundabout)
4. Maple Street/Veterans Boulevard
5. Blomquist Street/Maple Street (Side-street Stop Controlled)
6. Broadway/Woodside Road (State Route 84)/US 101 Southbound Off-Ramp
7. Veterans Boulevard/Woodside Road (SR 84)/US 101 Southbound On-Ramp
8. Blomquist Street/Seaport Boulevard/East Bayshore Road
9. Seaport Boulevard/Lyngso Lane (Side-street Stop Controlled)
10. Woodside Road/Bay Road
11. Woodside Road/Middlefield Road
12. Veterans Boulevard/Brewster Avenue
13. Veterans Boulevard/Middlefield Road
14. Veterans Boulevard/Jefferson Avenue
15. Veterans Boulevard/Main Street
16. Veterans Boulevard/Walnut Street



SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-1
Project Area and Study Intersections

17. Veterans Boulevard/Chestnut Street
18. Maple Street/Broadway
19. Maple Street/El Camino Real
20. Bay Road/Charter Street
21. Edgewood Road/Alameda de las Pulgas

Freeway Segments:

A. US 101 from Marsh Road to Woodside Road (SR 84)
B. US 101 from Woodside Road (SR 84) to Whipple Avenue
C. US 101 from Whipple Avenue to Holly Street

Freeway Ramps:

- US 101/Whipple Avenue on/off ramps
- US 101/Woodside Road – Seaport Boulevard (SR 84) on/off ramps

Data Collection

Intersection vehicle turning movement (passenger and truck), pedestrian, and bicycle counts were conducted during the morning (7:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.) peak periods, on typical weekdays while local schools were in session. Counts were conducted in April 2017, May 2017, and January 2018.

Field observations were conducted in February 2018 to confirm additional information regarding traffic control, existing lane configurations, posted speed limits, truck behavior, freeway bottleneck locations, and freeway and local roadway queuing.

Site Access

Direct access to the Project site would be provided by two driveways on Blomquist Street and one driveway from Seaport Boulevard via Lyngso Lane.

Analysis Methodologies

Potential roadway system impacts resulting from the Project have been evaluated, and presented herein, following methodologies and standards commonly applied by the City in accordance with traffic planning and engineering practice, and in accordance with the guidelines and policies of the San Mateo City/County Association of Governments (C/CAG), which is the Congestion Management Agency (CMA) for the County.

Evaluation of traffic conditions on local streets involves analysis of intersection operations, as intersections represent the locations where the roadway capacity is most constrained. Intersection and freeway mainline segment operations were evaluated with level of service calculations. Level of service (LOS) is a qualitative description of operations ranging from LOS A, when the roadway facility has excess capacity, and motorists experience little or no delay, to LOS F, where

the volume of vehicles exceeds the capacity, resulting in long queues and excessive delays. Typically, LOS E represents "at-capacity" conditions, and LOS F represents "over-capacity" conditions. At signalized intersections operating at LOS F, for example, drivers may have to wait through multiple signal cycles before clearing the intersection.

This LOS system applies to signalized and unsignalized intersections, as well as freeway mainline segments and ramps. LOS A, B, and C are generally considered satisfactory service levels, while the influence of congestion becomes more noticeable (though still considered acceptable) at LOS D. LOS E and F are generally considered to be unacceptable. The City has established a maximum acceptable operating level of LOS D for signalized and unsignalized intersections in all areas of the city, except the Downtown area as defined by the Downtown Precise Plan, and some intersections in the congestion management program network. The LOS threshold for all Project study intersections is LOS D.

For CEQA purposes, a freeway segment is considered to operate at an acceptable level if it operates at or better than the level of service standard identified for that segment by the County congestion management agency. C/CAG's level of service standards for the study freeway segments are LOS E for US 101 from SR 92 to Whipple Avenue, and LOS F for US 101 from Whipple Avenue to the Santa Clara County line. C/CAG does not provide thresholds for acceptable freeway ramp operations; however, Redwood City considers ramps operating less than their capacity (e.g. with a volume-to-capacity ratio lower than 1.00) to be acceptable.

All of the study intersections were evaluated using the Synchro/SimTraffic 9 software package, which incorporates the methods presented in the 2010 Highway Capacity Manual (HCM), specifically Chapters 18 (Signalized Intersections), 19 (Two-Way Stop Controlled Intersections), and 20 (Roundabouts). Intersections #1 – 8, 11 – 16, and 18 – 21 were analyzed using Synchro, which evaluates the operations of intersections that function independently. The remaining intersections were evaluated with SimTraffic, the micro-simulation portion of the software package. SimTraffic accounts for intersection operations affecting adjacent intersections, such as when vehicle queues extend between intersections. Freeway analysis was conducted according to the methodology adopted by C/CAG. Each analysis method is briefly described below.

California Senate Bill 743 (SB 743) was recently adopted to change the way that transportation impacts are analyzed under CEQA. Under SB 743, the Office of Planning and Research (OPR) is tasked with developing new criteria for determining the significance of transportation impacts, including accessing vehicle miles traveled. Once the guidelines are prepared and certified by the Secretary of the Natural Resources Agency, "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."[1] In November 2017, OPR released their proposed updates to the CEQA Guidelines. However, since OPR has not yet amended the CEQA Guidelines to implement this change, automobile delay is still considered a potential significant impact, and the City will continue to use the above-described established LOS criteria for its CEQA analyses.

[1] Public Resources Code section 21099(b)(2).

Signalized Intersections

The method from Chapter 18 of the HCM bases a signalized intersection's operation on the average control delay experienced by motorists traveling through it. Control delay incorporates the vehicle delay associated with deceleration, stopping, moving up in the queue, and acceleration. This method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing/timing) to estimate the average control delay. **Table 4.14-1** summarizes the relationship between average delay per vehicle and LOS for signalized intersections according to the 2010 HCM method.

TABLE 4.14-1
SIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 and ≤ 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 and ≤ 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35 and ≤ 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 and ≤ 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

SOURCE: Transportation Research Board, 2010. *2010 Highway Capacity Manual*.

Unsignalized Intersections

Traffic conditions at the unsignalized study intersections (two-way stop-controlled intersections and roundabouts) were evaluated using the method from Chapters 19 and 20 of the 2010 HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement or movement that must yield the right-of-way. At two-way stop-controlled intersections, the movement with the highest delay and corresponding LOS is reported. **Table 4.14-2** summarizes the relationship between delay and LOS for unsignalized intersections. Generally, the delay ranges for each LOS are lower than for signalized intersections because drivers expect less delay at unsignalized intersections.

Freeway Operations

Freeway mainline and ramp operations were evaluated using methods adopted by C/CAG, the 2000 HCM volume-to-capacity ratio method. The level of service description and the maximum volume-to-capacity ratio for each LOS designation are presented in **Table 4.14-3**.

TABLE 4.14-2
UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no traffic delays	≤ 10
B	Short traffic delays	> 10 and ≤ 15
C	Average traffic delays	> 15 and ≤ 25
D	Long traffic delays	> 25 and ≤ 35
E	Very long traffic delays	> 35 and ≤ 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

SOURCE: Transportation Research Board, 2010. *2010 Highway Capacity Manual*.

TABLE 4.14-3
FREEWAY LOS CRITERIA

Level of Service	Description	Maximum Volume to Capacity Ratio (V/C)
A	Free flow operations with average operating speeds at, or above, the speed limit. Vehicles are unimpeded in their ability to maneuver.	0.30
B	Free flow operations with average operating speeds at the speed limit. Ability to maneuver is slightly restricted. Minor incidents cause some local deterioration in operations.	0.50
C	Stable operations with average operating speeds near the speed limit. Freedom to maneuver is noticeably restricted. Minor incidents cause substantial local deterioration in service.	0.71
D	Speeds begin to decline slightly with increasing flows. Freedom to maneuver is more noticeably restricted. Minor incidents create queuing.	0.89
E	Operations at capacity. Vehicle spacing causes little room to maneuver but speeds exceed 50 miles per hour (mph). Any disruption to the traffic stream can cause a wave of delay that propagates throughout the upstream traffic flow. Minor incidents cause serious breakdown of service with extensive queuing. Maneuverability is extremely limited.	1.00
F	Operations with breakdowns in vehicle flow. Volumes exceed capacity causing bottlenecks and queue formation.	N/A

SOURCE: Transportation Research Board, 2000. *2000 Highway Capacity Manual*.

4.14.2 Analysis Scenarios

The operations of the study intersections and the freeway segments and ramps were evaluated during the time periods when traffic volumes are highest, i.e., during morning and evening commute periods also referred to as the AM and PM peak hours. The operations of these facilities were evaluated for the following scenarios:

- **Existing** – Existing traffic volumes on local roads and freeway segments/ramps, based on counts collected in 2017 and 2018.

- **Existing Plus Project** – Existing traffic volumes plus new traffic from the Project. This scenario includes a traffic signal at Seaport Boulevard/Lyngso Lane.
- **Existing Plus Project with Blomquist Extension**– Existing traffic volumes plus new traffic from the Project. This scenario includes the roundabout at Blomquist Street / Maple Street, a traffic signal at Seaport Boulevard/Lyngso Lane, and the Blomquist Street extension between Maple Street and East Bayshore Road.
- **Existing Plus Project with 101/84 Construction**– Existing traffic volumes plus new traffic from the Project. This scenario includes the roundabout at Blomquist Street / Maple Street, a traffic signal at Seaport Boulevard/Lyngso Lane and the Blomquist Street extension between Maple Street and East Bayshore Road. This scenario also includes the roadway constraints during construction of the 101/84 interchange improvements. This scenario is presented for informational purposes only.
- **Cumulative (2040) No Project** – Projected conditions in 2040 without the Project, including additional land use and the planned roadway network (including the Blomquist Street Extension to East Bayshore Road) as included in the General Plan buildout. Cumulative (2040) No Project conditions do not include any improvements associated with the US 101/SR 84 interchange improvement project.
- **Cumulative (2040) Plus Project** – Projected conditions in 2040 with the proposed Project. Cumulative (2040) Plus Project conditions are reported for the following two scenarios:
  - **Cumulative (2040) Plus Project (without 101/84 Interchange Improvements)** – Projected conditions in 2040 with the proposed Project without any improvements to the 101/84 interchange.
  - **Cumulative (2040) Plus Project (with 101/84 Interchange Improvements)** – Projected conditions in 2040 with the proposed Project and full buildout of the 101/84 interchange improvements.

4.14.3 Setting

The existing conditions for vehicles, transit, bicycles, and pedestrians within the vicinity of the site are presented below.

Roadway Network

The existing roadway network in the vicinity of the Project site, including regional and local roadways, is described below.

Regional Roadways

- **US Highway 101** is a major regional freeway serving Redwood City and the west coast of the United States. US 101 generally runs north-south, but has an east-west alignment through Redwood City. For the purpose of this study, US 101 is described using northbound and southbound directions to be consistent with the regional role that US 101 provides. The freeway extends northward from Redwood City through San Francisco and southward through San Jose. In Redwood City, US 101 is located on the east side of the City and

generally provides four mixed-flow lanes[2] in each direction. Access to the Project site is provided from US 101 via the interchange at Seaport Boulevard/Woodside Road (SR 84). After the completion of the proposed Blomquist Street Extension to Bair Island Road, secondary access to the Project will be provided via the Whipple Avenue interchange to the northwest of the site.

- **El Camino Real** is a State highway (State Route 82) serving Redwood City and the rest of California. El Camino Real generally runs north-south parallel to US 101 through Redwood City. North of Redwood City, El Camino Real runs to San Francisco and to the south through San Jose. Within Redwood City, the highway provides two vehicle lanes in each direction south of Edgewood Road and north of Woodside Road. North of Edgewood Road, El Camino Real has two northbound and three southbound vehicle travel lanes. South of Woodside Road, El Camino Real has three vehicle travel lanes in each direction. Access to El Camino Real from the Project is provided by Woodside Road and Maple Street.
- **Interstate 280 (I-280)** is a highway that connects San Jose and San Francisco and provides access to Redwood City. I-280 runs west of Redwood City with four lanes in each direction. Access to the Project site is provided from I-280 primarily via SR 84 (Woodside Road) but can also be accessed via Farm Hill Boulevard or Edgewood Road.

Local Roadways

The local roadways described below provide essential access to and through the study area, or are part of the study intersections.

- **Seaport Boulevard** runs from its interchange with US 101 and Woodside Road (SR 84) to the Pacific Shores business park at the northeastern terminus. Seaport Boulevard generally provides two travel lanes in each direction with protected left-turn lanes at key intersections. The posted speed limit on Seaport Boulevard is 35 miles per hour. A rail line runs parallel to Seaport Boulevard. There is a shared use path on the south side of Seaport Boulevard between East Bayshore Road and Pacific Shores. Access to the Project is provided via the signalized intersection with Blomquist Street. Additional access to the Project site is currently provided via the side-street stop controlled intersection with Lyngso Lane.
- **Blomquist Street** runs for roughly a third of a mile from Seaport Boulevard to Maple Street. Blomquist Street provides one travel lane in each direction with unrestricted, on-street parallel parking on the south side of the street. There are Class II bicycle lanes (defined in the subsection below) in both directions and a five-foot-wide sidewalk on the south side of the street. The Redwood City Transportation Impact Mitigation Fee Program (TIF) includes the extension of Blomquist Street (west-northwest of Maple Street) to connect with the roundabout at Bair Island Road via a new bridge crossing over Redwood Creek. The citywide transportation plan, *RWCmoves*, proposes a Class 1 bicycle path on Blomquist The posted speed limit on Blomquist Street is 25 miles per hour.

[2] Mixed-flow lanes carry all vehicles, as opposed to High-Occupancy Vehicle Lanes, which carry only vehicles that meet carpool occupancy requirements (or in some cases emission-control requirements).

- **Woodside Road (SR 84)** runs through Redwood City between US 101 and I-280. SR 84 then continues on the Dumbarton Bridge connecting Palo Alto to Fremont. North of Rutherford Avenue, Woodside Road has two vehicle travel lanes in each direction. North of the US 101 Woodside Road transitions into Seaport Boulevard. There are no bicycle lanes on Woodside Road. South of North of El Camino Real access ramps there are no sidewalks on either side of Woodside Road. The posted speed limit on Woodside Road is 35 miles per hour.

- **Maple Street** connects Downtown Redwood City to the Project site by way of a crossing over US 101. Northeast of the overcrossing, Maple Street provides access to the Redwood City Police Department and the Maple Street Correctional Center. Maple Street provides one lane in each direction, with a paved shoulder and a four-foot-wide sidewalk on some segments. The street includes segments with limited lane striping and designated shoulders. The pavement is in disrepair and is in need of repaving and other general street maintenance. Maple Street is currently classified in the General Plan as a Bicycle Boulevard between Veterans Boulevard (south of US 101) and Blomquist Street. Bicycle Boulevards as designated by the Redwood City General Plan are through-routes for bicycles, providing connectivity with the area's bicycle route network. These roadways accommodate shared lanes for local vehicular traffic, but bicycles have priority. The posted speed limit on Maple Street is 30 miles per hour.

- **Veterans Boulevard** is an east-west divided arterial roadway of varying widths (number of lanes) between the US 101 off-ramp at Whipple Avenue at its western terminus and the US 101 on-ramp at Woodside Road (SR 84) at its eastern terminus. Veterans Boulevard generally has six lanes between Whipple Avenue and Main Street, four lanes between Main Street and Chestnut Street, and two lanes between Chestnut Street and Woodside Road. It has bike lanes and a posted speed limit of 35 miles per hour.

- **Broadway** is a two- to four-lane roadway that extends from Hopkins Avenue through Downtown Redwood City to Fifth Avenue. Between Hopkins Avenue and El Camino Real, the roadway has two lanes and bike lanes on both sides of the street. Through Downtown, between El Camino Real and Spring Street, two vehicle lanes are maintained with no bicycle lanes. East of Spring Street, the cross-section of Broadway varies, widening to four lanes the majority of the time, with portions being two lanes with a two-way left turn lane. Bicycle facilities east of Spring Street include sharrows and discontinuous bike lanes between Chestnut Street and Charter Street and between Second Avenue and Fifth Avenue. There are sidewalks along the length of Broadway. On-street parking is not permitted between Chestnut Street and Charter Street, between Douglas Avenue and Second Avenue, or through portions of Downtown. It has a posted speed limit of 30 miles per hour.

- **Edgewood Road** is a two lane roadway that connects Interstate 280, El Camino Real, and US 101. The Edgewood Road runs east/west and provides a connection to other local roadways within Redwood City. Vehicles traveling to Alameda de las Pulgas are then able to connect to Whipple Avenue, which provides access to El Camino Real and US 101. North of Alameda de las Pulgas, Edgewood Road operates as a local street that ends at El Camino Real. No parking is allowed on the roadway and there are no bicycle facilities or pedestrian amenities such as sidewalks.

Intersection Operations

The existing AM and PM peak-hour traffic demand volumes, lane geometries, and intersection controls for the study intersections are shown in **Figure 4.14-2**.[3] Volumes presented on the figure for intersections analyzed with the Synchro analysis platform represent intersection peak hours. Volumes at intersections analyzed with the SimTraffic simulation platform represent the global peak hours, which correspond, to the hours between 7:45 and 8:45 a.m. during the morning and between 4:30 and 5:30 p.m. during the evening. The raw traffic count data are presented in **Appendix F.1** to this EIR.

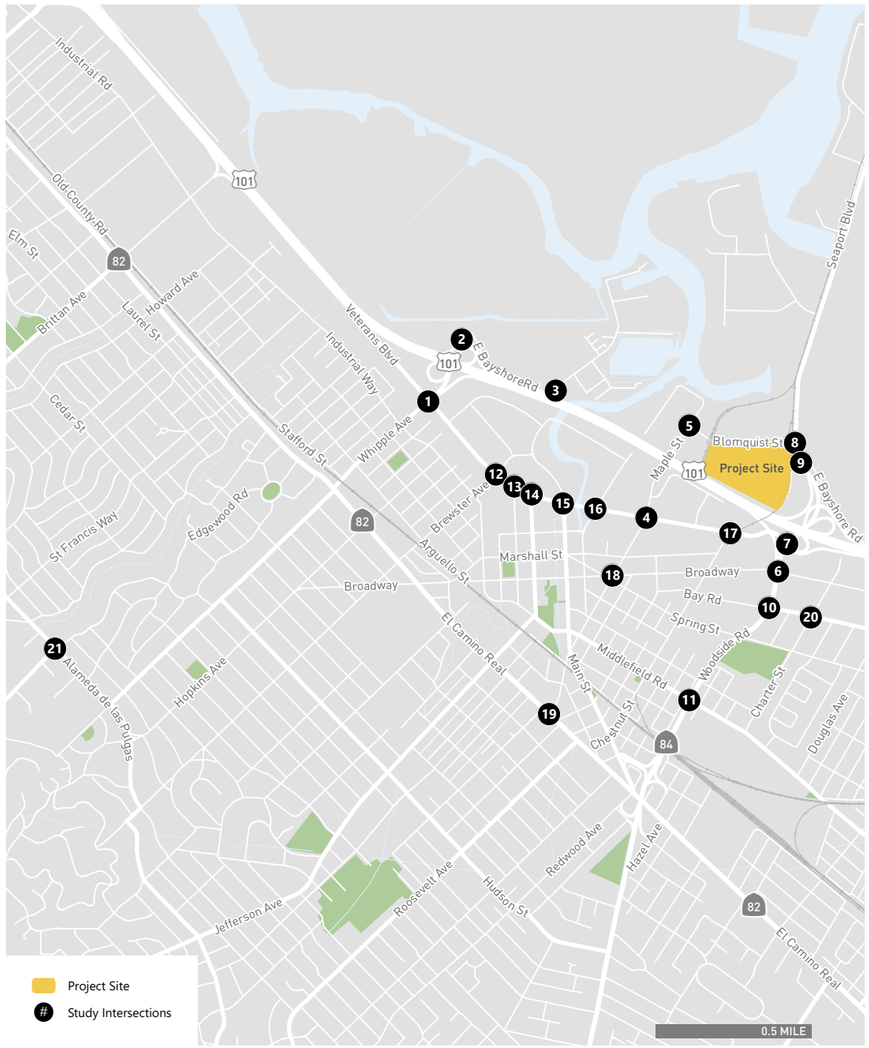
The following were taken into consideration in establishing the peak-hour intersection demand volumes:

- Based on field observations, the queue lengths approaching the intersections at the beginning of the peak hour were similar to the queue lengths at the end of the peak hour, indicating that the traffic counts represent the total demand volume for the selected peak hour.
- The Woodside Road off-ramp demand volumes at the intersections reflect the counted volume at the exit ramp gore point. The AM and PM peak-hour demand volume at the off-ramps was set to be the average of the peak hour demand volume ramp counts.
- Minor adjustments to the raw traffic counts to ensure balanced vehicle flows between adjacent intersections.

As shown in **Table 4.14-4**, during the AM and PM peak hours, all intersections are operating at acceptable LOS, except the following:

6. Broadway/Woodside Road (SR 84)/US 101 Southbound On-Ramp – LOS F in the AM and PM peak hours
7. Veterans Boulevard/Woodside Road (SR 84)/US 101 Southbound On-Ramp– LOS F in the PM peak hour
10. Woodside Road/Bay Road – LOS F in the AM peak hour
11. Woodside Road/Middlefield Road – LOS E in the AM peak hour and LOS F in the PM peak hour
21. Edgewood Road/Alameda de las Pulgas – LOS E in the PM peak hour

[3] This analysis used demand volumes to be consistent with the US 101/ SR 84 (Woodside Road) Interchange Improvement Project. Demand volumes can differ from counted volumes because they include vehicles that are waiting in a queue. For intersections operating at good LOS, with little to no queuing, demand volumes and counted volumes are synonymous. For intersections operating at LOS D, E, or F, with queuing, the demand volumes are slightly higher than the counted volumes.



LEGEND

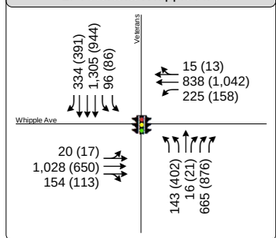
AM (PM) Peak Hour Traffic Volume

Lane Configuration

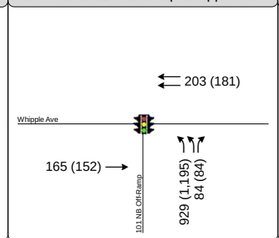
Stop Sign

Signalized

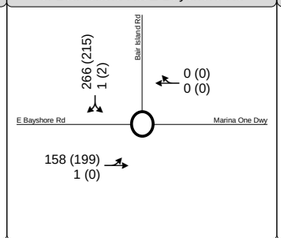
1. Veterans/Whipple Ave



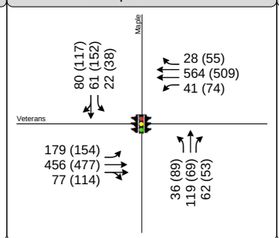
2. US 101 NB Off-Ramp/Whipple Ave



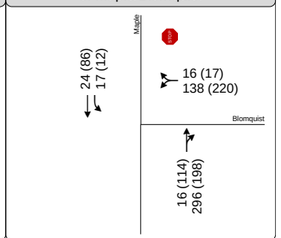
3. Bair Island Rd/E Bayshore Rd



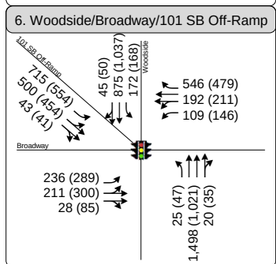
4. Maple/Veterans



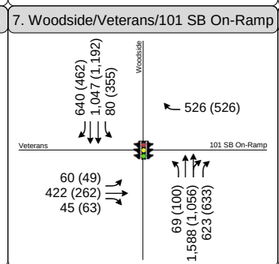
5. Maple/Blomquist



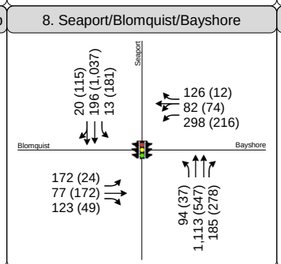
6. Woodside/Broadway/101 SB Off-Ramp



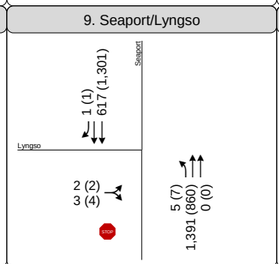
7. Woodside/Veterans/101 SB On-Ramp



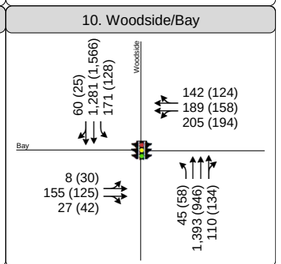
8. Seaport/Blomquist/Bayshore



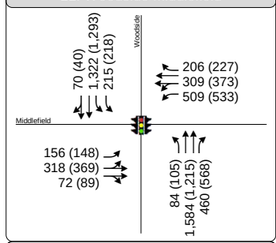
9. Seaport/Lyngso



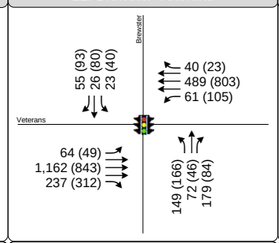
10. Woodside/Bay



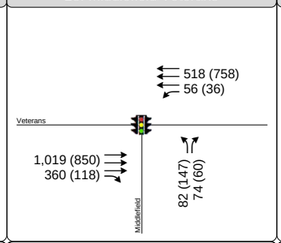
11. Woodside/Middlefield



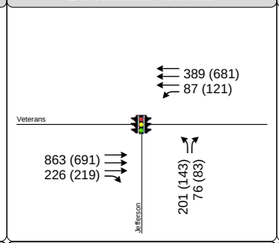
12. Brewster/Veterans



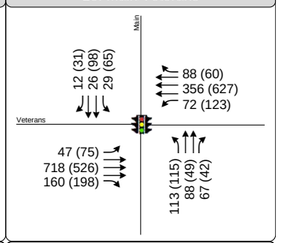
13. Middlefield/Veterans



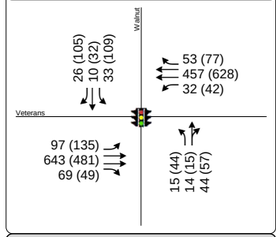
14. Jefferson/Veterans



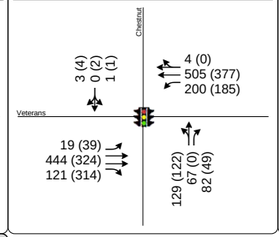
15. Main/Veterans



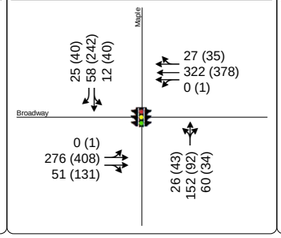
16. Walnut/Veterans



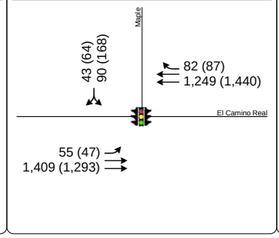
17. Chestnut/Veterans



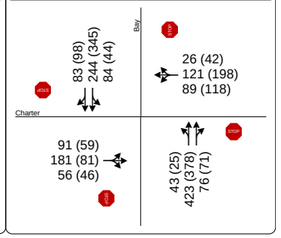
18. Maple/Broadway



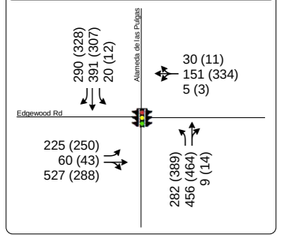
19. Maple/El Camino Real



20. Charter/Bay



21. Alameda de las Pulgas/Edgewood Rd



SOURCE: Fehr & Peers

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Figure 4.14-2

Peak Hour Traffic Volumes and Lane Configurations – Existing (2017) Configurations

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TABLE 4.14-4
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) RESULTS

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay[a]	LOS	Delay[a]	LOS
1. Veterans Boulevard / Whipple Avenue	Signal	39	D	35	C
2. Whipple Avenue / US 101 Northbound Off-Ramp	Signal	14	B	19	B
3. Bair Island Road / East Bayshore Road	Roundabout	<10	A	<10	A
4. Maple Street / Veterans Boulevard	Signal	19	B	22	C
5. Blomquist Street / Maple Street	SSS	<10	A	<10	A
6. Broadway / Woodside Road / US 101 Southbound Off-Ramp	Signal	**>80**	**F**	**>80**	**F**
7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp	Signal	32	C	**>80**	**F**
8. Blomquist Street / Seaport Boulevard / East Bayshore Road	Signal	26	C	33	C
9. Seaport Boulevard/Lyngso Ln	SSS	<10	A	<10	A
10. Woodside Road/Bay Road	Signal	**>80**	**F**	36	D
11. Woodside Road/Middlefield Road	Signal	**76**	**E**	**>80**	**F**
12. Veterans Boulevard/Brewster Avenue	Signal	26	C	26	C
13. Veterans Boulevard/Middlefield Road	Signal	10	A	<10	A
14. Veterans Boulevard/Jefferson Avenue	Signal	19	B	14	B
15. Veterans Boulevard/Main Street	Signal	16	B	19	B
16. Veterans Boulevard/Walnut Street	Signal	22	C	32	C
17. Veterans Boulevard/Chestnut Street	Signal	45	D	20	B
18. Maple Street/Broadway	Signal	17	B	16	B
19. Maple Street/El Camino Real	Signal	<10	A	13	B
20. Bay Road/Chestnut Street	AWS	31	D	24	C
21. Edgewood Road/Alameda de las Pulgas	Signal	53	D	**57**	**E**

[a] For signalized intersections, all-way stop controlled (AWS), and roundabouts, delay is the weighted average for all movements in seconds per vehicle. For side-street stop controlled (SSS) intersections, delay is the worst-operating approach delay.

Bold = unacceptable LOS.

SOURCE: Fehr & Peers, 2018.

Freeway Operations

Freeway ramp and mainline operations were studied in detail as part of the US 101/SR 84 (Woodside Road) Interchange Improvement Project. Ramp and mainline data from the following sources were reviewed:

- Ramp volumes from the Existing Conditions Report for the US 101/Holly Street Interchange Project;[4]
- Ramp volumes from intersection counts conducted April 2017, May 2017, and January 2018; and

[4] Fehr & Peers, 2013. *U.S. 101/Holly Street Interchange Project Existing Conditions Report*. December.

- Mainline counts obtained from the Performance Measurement System (PeMS) database (2014).[5]

Traffic volumes that represent a typical weekday were selected, and existing peak-hour traffic volumes on the study freeway segments and ramps are presented in **Table 4.14-5** and **Table 4.14-6**, respectively. The freeway mainline segments and ramp junction operations were evaluated using a volume-to-capacity analysis. All freeway segments currently operate at or better than the Congestion Management Program (CMP) LOS standard. All ramps operate below capacity (LOS D or better).

TABLE 4.14-5
EXISTING FREEWAY SEGMENT LEVEL OF SERVICE (LOS) RESULTS

Freeway Segment	CMP LOS Standard [a]	Peak Hour	Direction	Volume	V/C [b]	LOS
A. US 101, north of Whipple Avenue	E	AM	NB	8,198	0.89	E
		AM	SB	9,020	0.98	E
		PM	NB	7,750	0.84	D
		PM	SB	8,061	0.88	D
B. US 101, south of Whipple Avenue	F	AM	NB	8,006	0.92	E
		AM	SB	8,080	0.93	E
		PM	NB	7,228	0.83	D
		PM	SB	7,518	0.86	D
C. US 101, south of Woodside Road	F	AM	NB	8,502	0.98	E
		AM	SB	7,797	0.90	E
		PM	NB	7,159	0.82	D
		PM	SB	7,778	0.89	E

[a] Per C/CAG 2013 Congestion Management Program (CMP) Monitoring Report.
[b] V/C = Volume-to-Capacity Ratio

SOURCE: Fehr & Peers, 2018.

Public Transit System

The City of Redwood City is served by two major transit providers: SamTrans and Caltrain. SamTrans provides local and regional bus service, and Caltrain provides commuter rail service. Local shuttles are also provided in Redwood City during commute hours by Caltrain and Commute.org. Transit service (bus routes, major bus stops and Caltrain service and station) is shown on **Figure 4.14-3**.

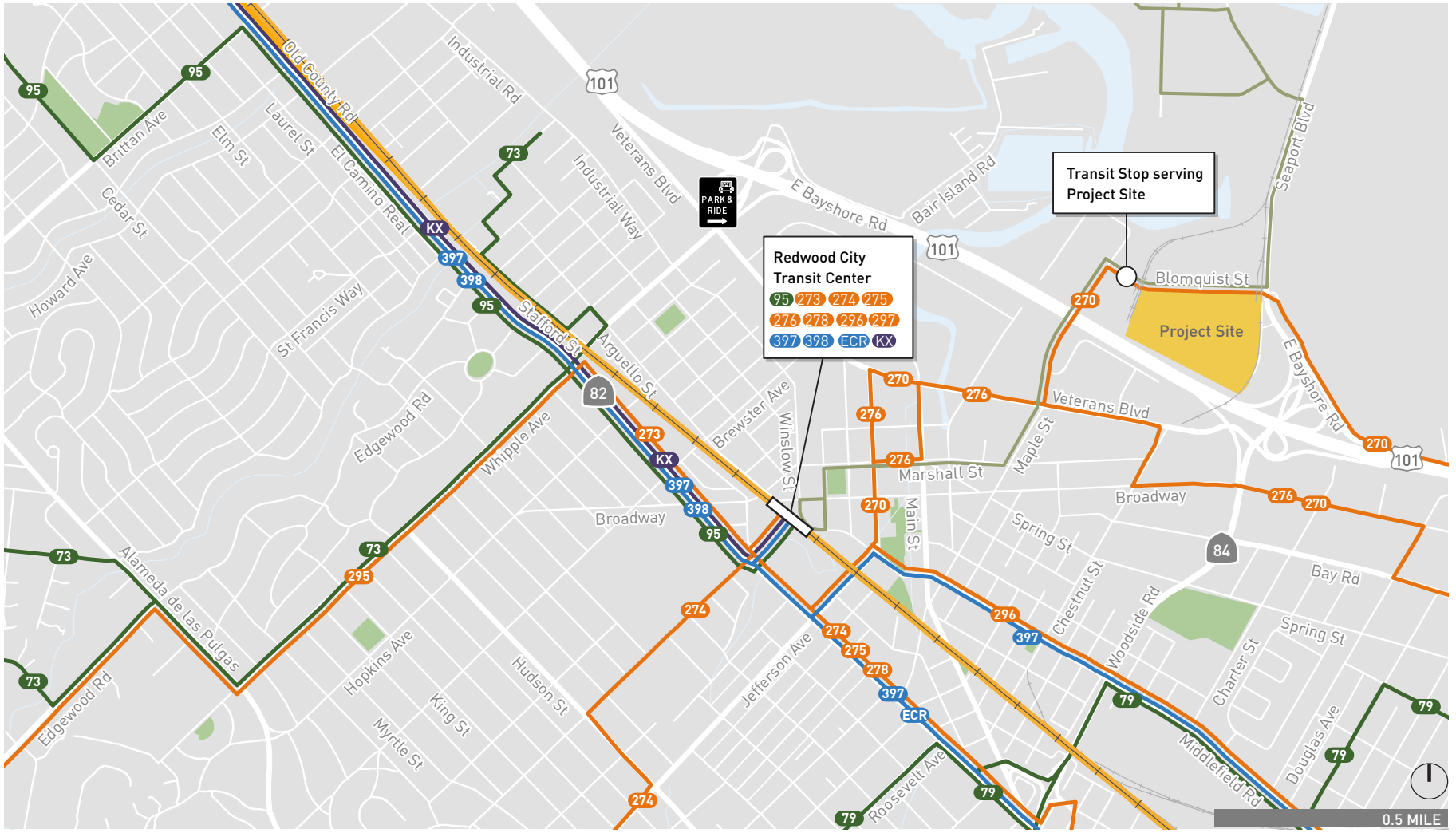
[5] The most recent PeMS volumes (2016) for relevant mainline locations were reviewed and were not substantially different from 2014 volumes (<10%). To maintain consistency with recently completed studies, 2014 volumes were used.

TABLE 4.14-6
EXISTING FREEWAY RAMP LEVEL OF SERVICE (LOS) RESULTS

Freeway Interchange and Ramp		Type	Capacity	Peak Hour	Volume	V/C [a]	LOS
US 101/Woodside Road							
Northbound	Off-Ramp to Woodside Road	Diagonal	2,000	AM	1,719	0.86	D
				PM	1,230	0.62	C
	On-Ramp from Westbound Seaport Boulevard	Diagonal	2,000	AM	264	0.15	A
				PM	579	0.32	B
	On-Ramp from Eastbound Woodside Road	Loop	1,800	AM	1,093	0.61	C
				PM	864	0.48	B
Southbound	Off-Ramp to Eastbound Woodside Road	Loop	1,800	AM	526	0.29	A
				PM	158	0.09	A
	Off-Ramp to Westbound Woodside Road	Diagonal	2,000	AM	884	0.44	B
				PM	1,008	0.50	C
	On-Ramp from Woodside Road	Diagonal	2,000	AM	936	0.43	B
				PM	1,239	0.62	C
US 101/Whipple Avenue							
Northbound	Off-Ramp to Whipple Avenue	Diagonal	2,000	AM	1,014	0.51	C
				PM	1,282	0.64	C
	On-Ramp from Eastbound Whipple Avenue	Loop	1,800	AM	1,029	0.57	C
				PM	924	0.51	C
	On-Ramp from Westbound Whipple Avenue	Diagonal	900	AM	75	0.08	A
				PM	69	0.08	A
Southbound	Off-Ramp to Veterans Avenue/Whipple Avenue	Diagonal (Dual-Lane)	3,800	AM	1,727	0.45	B
				PM	1,355	0.36	B
	On-Ramp from Westbound Whipple Avenue	Loop	900	AM	54	0.06	A
				PM	165	0.18	A
	On-Ramp from Eastbound Whipple Avenue	Diagonal	2,000	AM	595	0.30	A
				PM	543	0.27	A

[a] Theoretical capacities of off-ramps per Exhibit 25-3 of HCM 2000: 2,000 vehicles per hour (vph) for single-lane diagonal ramps, 1,800 vph for loop ramps, and 3,800 vph for dual-lane diagonal off-ramps. For on-ramps, capacities are based on existing meter rates for each lane by ramp.
[b] V/C = Volume-to-Capacity Ratio

SOURCE: Fehr & Peers, 2018.



Project Site
Park & Ride Lot
Caltrain Lines and Stations
SamTrans Express Route
SamTrans School-day Only Routes
SamTrans Routes connecting to BART and Caltrain Stations
SamTrans Routes connecting to Caltrain Stations
RWC-Seaport Centre Caltrain Shuttle

SOURCE: Fehr & Peers

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Figure 4.14-3
Existing Transit Network

SamTrans Bus Service

San Mateo County Transit District (SamTrans) operates bus service throughout San Mateo County, with more than 50 routes that are categorized as community, express, BART connection, Caltrain connection, and BART and Caltrain connection routes. Most bus routes typically operate along major arterial corridors and operate from early morning into the late evening.

SamTrans Route 270 is currently the only bus route that serves the Project site (via Maple Street and Blomquist Street), providing service between Redwood City Caltrain Station and Kaiser Hospital, Seaport Village, Harbor Village, and Marsh Road (Menlo Park). Headways (frequency of service) are every 60 minutes on weekdays between 6:00 a.m. and 6:00 p.m., as well as on Saturdays between 8:00 a.m. and 6:00 p.m. The bus stop serving the Project is located within walking distance, approximately a quarter mile away at the intersection of Blomquist Street/Maple Street. Route 270 currently only serves the Maple/Blomquist stop in the inbound direction towards the Redwood City Transit Center. Limited service is provided after 6:00 p.m. on weekdays, and no service is provided on Sundays. Routes 296, 297, 397, and ECR serve the Redwood City Caltrain Station and other destinations in Redwood City as well as outside the City; however, these routes do not provide direct service to the Project site.

Caltrain

Caltrain operates commuter rail service between San Francisco and San Jose, and limited service trains to Morgan Hill and Gilroy during weekday commute periods. On weekdays, Caltrain operates approximately 100 trains per day of local, limited stop, and Baby Bullet express service in both directions. The Redwood City Caltrain station is located on James Avenue near the intersection of Broadway and Marshall Street in downtown Redwood City. The station is located approximately 1.3 miles from the Project site. Travel times between Redwood City and San Francisco are approximately 50 minutes, and travel times between Redwood City and San Jose are approximately 40 minutes for local and limited stop services. Caltrain's Baby Bullet express service makes it possible to travel between Redwood City and San Francisco or San Jose in less than 35 or 30 minutes, respectively. Caltrain offers about 20 weekday commute-hour Baby Bullet trains, which serve Redwood City southbound in the morning and northbound in the evening. On weekends, Caltrain operates approximately 35 trains per day with local stops only. The Redwood City Caltrain Station is currently the fifth highest ranked station in the corridor in terms of average weekday ridership with approximately 3,900 passengers (6.2 percent of the average weekday ridership system total) boarding and alighting daily at the station.[6]

The Caltrain Electrification Program, scheduled for completion in 2021, is a plan to electrify the railway for increased efficiency and capacity.[7] The program will increase frequency of service, including expansion of the number of peak hour trains.

6 Caltrain, 2017. *Annual Passenger Count Key Findings Report*. Website: www.caltrain.com/about/statsandreports/Ridership.html (accessed November 2, 2017).

7 2020/2021 completion is according to the latest estimate on the project web site: www.caltrain.com/projectsplans/CaltrainModernization/Modernization.html.

Shuttle Service

Shuttle service on the northeast side of US 101 in Redwood City is provided by Caltrain and Commute.org. While these shuttles currently travel along adjacent or nearby roadways, they do not stop near the Project site. In the future, these routes could be modified to serve the Project site, pending agreement of the operating agencies. Each shuttle service is described below.

- **Pacific Shores Shuttles** are operated by Caltrain and provide service between the Redwood City Caltrain Station and employment centers east of US 101 on Seaport Boulevard and Chesapeake Drive. These shuttles are free and are also open to the public. Headways are based on train arrivals and departures at the Redwood City Caltrain Station and the shuttles operate 7:00 a.m. to 12:00 p.m. and 3:00 p.m. to 9:00 p.m. on weekdays only. The shuttle travels through the intersection of Blomquist Street/Maple Street and could add a stop within walking distance of the Project site (approximately a quarter mile).
- **Redwood City-Seaport Centre Caltrain Shuttle** is operated by Commute.org. It is designed to provide employees at the Seaport Centre Business Park with shuttle service directly from the Redwood City Caltrain Station. These shuttles are free and open to the public. Headways are based on train arrivals and departures at the Redwood City Caltrain Station and the shuttles operates approximately between the hours of 6:30 a.m. to 10:00 a.m. and 4:00 p.m. to 7:30 p.m. on weekdays only. The shuttle currently stops within walking distance of the Project site, approximately a quarter mile away at the intersection of Blomquist Street/Maple Street.

Pedestrian Facilities

Pedestrian facilities vary throughout the study area; some streets have sidewalks, crosswalks, and pedestrian signals, whereas other streets lack any pedestrian facilities. Dedicated pedestrian facilities are provided along the Bay Trail (described below). US 101 is a substantial barrier to pedestrian connectivity between the Project site and Downtown, with limited crossing opportunities. Existing crossing points for pedestrians include the Whipple Avenue overcrossing, Maple Street overcrossing and informal trails underneath US 101 near Main Street and Chestnut Street.

Existing Pedestrian Network

As pedestrian facilities are currently lacking in the study area, the Project has an opportunity to upgrade the pedestrian environment immediately adjacent to the Project site.

- **Seaport Boulevard** has a shared-use pedestrian and bicycle path on the east side of the road that serves as part of the Bay Trail north of Blomquist Street. At the signalized intersection with Blomquist Street, there is one marked crosswalk for pedestrians to travel between the northeast and northwest corners.
- **Maple Street** provides pedestrian access to the Project site across US 101. Maple Street has paved shoulders on the approaches to the overcrossing, a four-foot-wide sidewalk on the east side of the overcrossing, and a two-foot-wide shoulder on the west side of the overcrossing. Although people walk in the paved shoulder, the lack of a sidewalk connection and the narrow sidewalks makes walking trips across US 101 challenging. The Maple Street Correctional Center added sidewalks along its frontage on the east side of Maple Street and south side of Blomquist Street.

- **Blomquist Street** has sidewalks on its southern side from Maple Street until approximately 100 feet west of the intersection with Seaport Boulevard.

In addition to the above pedestrian facilities, part of the existing Bay Trail includes the pedestrian/bicycle bridge crossing Redwood Creek, although the land side connections were never completed. This bridge provides access to the Project site from the north, but the bridge approaches do not meet current design standards for the Americans with Disabilities Act (ADA).

Pedestrian Access to Transit

There is one local bus stops within a quarter-mile of the study area located at Maple Street/Blomquist Street, and the Redwood City Caltrain Station is approximately a one-mile walk away. Currently, people must walk across the Maple Street/US 101 overcrossing to connect to the Caltrain Station. As noted above, limited pedestrian facilities (i.e., sidewalks, marked crosswalks) and discontinuous coverage make it difficult for pedestrians to access transit.

Pedestrian Counts

Existing pedestrian volumes are generally low near the Project site, but are higher on the southwest side of US 101, closer to Downtown. The intersection of Maple Street/Veterans Boulevard has the highest pedestrian volumes within the study area with roughly 80 to 100 pedestrian crossings in the AM and PM peak hours. Other study intersections have 40 or fewer peak-hour pedestrians. The pedestrian counts are included in **Appendix F.1** to this EIR.

Bicycle Facilities

Redwood City has adopted four classes of bicycle facilities, which are the same as the standard classifications used by Caltrans and commonly adopted by other jurisdictions. Caltrans guidelines and design standards are presented in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design) and other design documents. Bicycle facilities are comprised of paths (Class I), lanes (Class II), routes (Class III), and separated lanes (Class IV) as described below.

- **Class I Shared Use Path** provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians, with vehicle cross-flow minimized.
- **Class II Bike Lane** provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.
- **Class III Bike Route** provides for a right-of-way designated by signs or pavement markings (sharrows) for shared use with pedestrians or motor vehicles. Sharrows are a type of pavement marking (bike and arrow stencil) placed to guide bicyclists to the best place to ride on the road, avoid car doors, and remind drivers to share the road with cyclists.
- **Class IV Separated Bikeway** provides on-street bicycle lanes with a three-foot minimum horizontal and vertical buffer from travel lanes or parking lanes. The physical separation provides a more comfortable riding experience for bicyclists; however, they still must mix with vehicles at intersections.

Figure 4.14-4 provides a map of existing and proposed bicycle facilities in the immediate vicinity of the Project site.

Existing Bicycle Network

The existing bicycle network within the vicinity of the Project site is described below.

- **Blomquist Street** has east-west Class II bike lanes on both sides from Maple Street to Seaport Boulevard. These bike lanes serve as a key link between the Bay Trail segments to the northwest and the Project site. Due to heavy truck traffic along Blomquist Street the bicycle lane markings are degraded or difficult to see. A Class I bike path is proposed for Blomquist Street in *RWCmoves* as a key connection for the Bay Trail
- **Maple Street** is designated as a Bicycle Boulevard between Veterans Boulevard and Blomquist Street in the Redwood City General Plan. Although there are no marked facilities on Maple Street, the segment east of US 101 has relatively wide shoulders.

No public bicycle parking is provided. Although there are limited opportunities for bicycles to cross US 101, there are several streets with bicycle facilities southwest of US 101 that connect to downtown Redwood City such as Veterans Boulevard, Brewster Avenue, and Marshall Street.

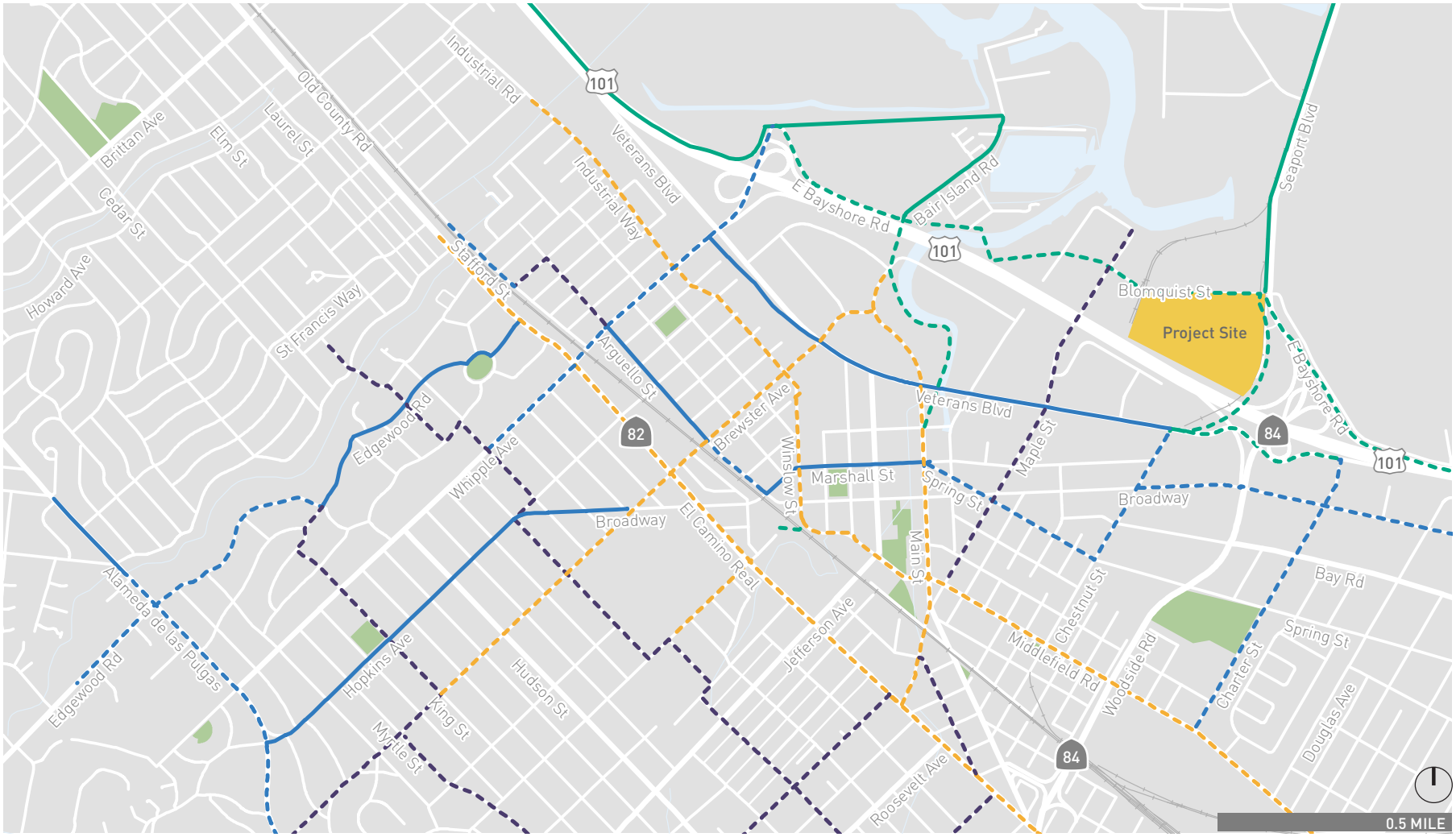
There are two existing segments of the Bay Trail just outside of the study area, including the Class I shared-use paths to the northwest of Redwood Creek across the bridge facility as noted earlier and to the east of the intersection of Blomquist Street/Seaport Boulevard/East Bayshore Road. These Class I paths provide bicycle connections to destinations to the north and south parallel to US 101 and to east along Seaport Boulevard.

Bicycle Access to Transit

Lockable, sheltered bike parking is provided at the Redwood City Caltrain Station adjacent to the station platform. Approximately 330 daily passengers board with bikes at the Redwood City Caltrain station, making it the fourth busiest Caltrain station for bike ridership. Bicycle access to the Caltrain Station is provided via Maple Street and Broadway, which both currently lack bicycle amenities.

Bicycle Counts

Blomquist and Maple Streets have the highest level of bicycle activity within the study area. During the AM peak hour, 55 to 60 bicycles were counted using Blomquist Street at Maple Street and Seaport Boulevard, many of which were likely traveling along the Bay Trail. Approximately 35 bicycles were counted at Maple Street/Veterans Boulevard. During the PM peak hour, volumes are lower at each of these locations.



SOURCE: Fehr & Peers

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Figure 4.14-4

Proposed Bicycle Facilities

4.14.4 Regulatory Setting

The existing regulatory setting as it relates to transportation and circulation within the vicinity of the Project site is described below.

Agencies with Jurisdiction in Redwood City

The City of Redwood City has jurisdiction over all local City streets and City-operated traffic signals within the study area. Several regional agencies, including the City/County Association of Governments of San Mateo County (C/CAG), the Congestion Management Agency in San Mateo County, and the Metropolitan Transportation Commission (MTC), coordinate and establish funding priorities for intra-regional transportation improvement programs. Freeways serving Redwood City (US 101 and I-280), associated local freeway ramps, intersections that serve as freeway ramp terminals, and local surface highway segments are under the jurisdiction of the State of California Department of Transportation (Caltrans). Transit service providers such as Caltrain, SamTrans, and the Water Emergency Transportation Authority (ferry service), have jurisdiction over their respective services. These agencies, their responsibilities, and funding sources are more specifically described below.

City of Redwood City

The City of Redwood City is responsible for planning, constructing, and maintaining local public transportation facilities, including all City streets, City-operated traffic signals, sidewalks, and bicycle facilities. These local services are funded primarily by utility tax revenue, gas-tax revenue and developer fees.

San Mateo City/County Association of Governments (C/CAG)

C/CAG is the Congestion Management Agency (CMA) for San Mateo County authorized to set State and federal funding priorities for improvements affecting the San Mateo County Congestion Management Program (CMP) roadway system. C/CAG-designated CMP roadway system components in Redwood City include SR 82 (El Camino Real), SR 84 (Woodside Road), US 101, and I-280. C/CAG-designated CMP intersections in or near Redwood City include El Camino Real/Whipple Avenue, Bayfront Expressway/Marsh Road (borders Redwood City), and Woodside Road/Middlefield Road. C/CAG has set the level of service standards for US 101 segments in the vicinity of the Project site.

C/CAG has adopted guidelines to reduce the number of net new vehicle trips generated by new developments. These guidelines apply to all developments that generate 100 or more net new peak-hour vehicular trips on the CMP network and are subject to CEQA review. The goal of the guidelines is that "the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development."

Metropolitan Transportation Commission (MTC)

The regional transportation planning agency and Metropolitan Planning Organization (MPO) for the nine-county Bay Area is the Metropolitan Transportation Commission (MTC). MTC is the

authorized clearinghouse for State and federal transportation improvement funds. Each county's CMA, including C/CAG, forwards a capital improvement project list to MTC. MTC reviews the lists submitted by all nine Bay Area counties and submits a regional priority list to the California Transportation Commission (CTC) and/or the Federal Highway Administration (FHWA) for selection of projects to receive funding. Funded projects are then included in the Regional Transportation Plan (RTP) prepared by MTC.

California Department of Transportation (Caltrans)

Caltrans has authority over the State highway system, including mainline facilities, interchanges, and arterial State routes. Caltrans approves the planning and design of improvements for all State-controlled facilities. Caltrans facilities in Redwood City include US 101 and its interchanges at Whipple Avenue and Woodside Road (SR 84); SR 82 (El Camino Real); and SR 84 (Woodside Road), including the El Camino Real/Woodside Road interchange.

SamTrans

The San Mateo County Transit District (SamTrans) is the primary public transportation provider in San Mateo County. SamTrans manages local and regional bus service, paratransit services, and Caltrain commuter rail. There are over 50 routes in the county that can be categorized as community, express, BART connection, Caltrain connection, and BART and Caltrain connection routes.

Caltrain

Caltrain operates 50 miles of commuter rail between San Francisco and San Jose, and limited service trains to Morgan Hill and Gilroy during weekday commute periods. Caltrain is funded through the Peninsula Corridor Joint Powers Board and managed by SamTrans. On weekdays, Caltrain operates approximately 100 trains per day of local, limited stop, and Baby Bullet express service in both directions.

Water Emergency Transit Agency

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) operates regional ferry service on the San Francisco Bay and coordinates water transit response to regional emergencies. WETA provides public ferry service to the cities of Alameda, Oakland, San Francisco, South San Francisco, and Vallejo. WETA's long-term vision includes service between Redwood City and Downtown San Francisco. The potential terminal would be located at the Port of Redwood City, approximately two miles northeast of the Project site. WETA currently lacks funding to build and operate service to this potential terminal.

Pertinent Plans and Policies

Planning and policy documents that apply to transportation and circulation within the vicinity of the site are described below.

Redwood City General Plan

The Redwood City General Plan was adopted in October 2010 to guide future decision making in Redwood City. The Circulation Element of the General Plan was developed to guide decision making specific to transportation. The goal of the Circulation Element is to:

> **Goal BE-25:** Maintain a local transportation system that balances the needs of bicyclists, pedestrians, and public transit with those of private cars.

All projects should be evaluated to ensure they are consistent with the General Plan goals and policies related to transportation. At a minimum, transportation analysis should evaluate the project access points, connectivity to adjacent bicycle, pedestrian, transit and vehicle facilities. Specific significance criteria from the General Plan are presented below.

Redwood City Transportation Plan

A comprehensive assessment of transportation within Redwood City (*RWCmoves*) was recently adopted. *RWCmoves* provides a vision for the city's transportation network and tiers off goals established in the city's General Plan. Specific citywide transportation plan goals are identified and relate to creating a safe and efficient multimodal network that is accessible to all users. *RWCmoves* also identifies potential transportation projects and programs to help attain the transportation goals outlined including active transportation corridors, complete street corridors, transit improvements, roadway congestion improvements, network gap closures, transportation technologies, and transportation demand management. *RWCmoves* proposes a Bicycle Backbone Network to provide Citywide connectivity by bicycle for people of all ages and abilities. Relevant to this Project are the proposed Class I bicycle path on Blomquist Street from Maple Street to Redwood Creek and along the UPRR tracks underneath US 101 between Veterans Boulevard and the Blomquist Street/Seaport Boulevard/East Bayshore Road intersection.

Redwood City Transportation Impact Mitigation Fee Program

The Redwood City Transportation Impact Mitigation Fee Study (TIF) has been prepared and adopted by the City to establish a source of funding for future transportation system capital improvements in the City. The transportation fee program has been formulated to fully fund a variety of transportation improvement projects located throughout the City. The list of transportation projects associated with the transportation fee program is on file with the Redwood City Community Development Department, City Hall, 1017 Middlefield Road, and is subject to amendment periodically. Notable TIF projects within the study area include the Blomquist Street Extension to East Bayshore Road and the addition of an eastbound right-turn lane at Veterans Boulevard/Whipple Avenue. In addition, the TIF includes area-wide improvements and projects to include alternative and transit modes such as neighborhood traffic management programs, a transportation demand management coordinator, and miscellaneous transit, pedestrian, and bicycle projects throughout the City.

C/CAG Guidelines

C/CAG has adopted guidelines as a part of its CMP, which are intended to reduce the regional traffic impacts of substantive new developments. The guidelines apply to all projects in San Mateo County that will generate 100 or more net new peak-hour trips on the CMP network and are subject to CEQA review. C/CAG calls for projects that meet the criteria to determine if a combination of acceptable measures is possible that has the capacity to "fully reduce," through the use of a trip credit system, the demand for net new trips that the Project is anticipated to generate on the CMP roadway network (including the first 100 trips). C/CAG has published a list of mitigation options in a memorandum that also outlines a process for obtaining C/CAG approval.

US 101/SR 84 (Woodside Road) Interchange Improvement Project

The City of Redwood City, in cooperation with Caltrans, recently completed an environmental study to modify the existing US 101/SR 84 (Woodside Road) interchange to increase roadway capacity and improve pedestrian and bicycle access through the interchange area. Some of the key project components include:

- Redesign of the existing southbound off-ramp termini from a five-legged intersection to a four-legged intersection to reduce vehicle, pedestrian, and bicycle conflicts;
- A direct Veterans Boulevard ramp connection to US 101 to reduce vehicular traffic on Woodside Road;
- Perpendicular ramp termini to Woodside Road to allow for improved crossings for both pedestrians and bicyclists; and
- Class I multi-use paths on the south side of the interchange and along the UPRR corridor to provide safer pedestrian/bicycle access through the interchange.

The Project does not add capacity to US 101; but rather focuses primarily on reconfiguring the ramp terminal intersections at Woodside Road to improve local street traffic operations. The Project includes a direct ramp connector from northbound US 101 to northbound Veterans Boulevard and southbound Veterans Boulevard to southbound US 101. Preliminary design, technical studies, and environmental review were completed in 2016. Final design and preparation of construction documents are expected to be completed by 2020. Construction of the proposed interchange improvements is expected to be complete by 2023, pending Caltrans approval and identification of funding sources.

San Francisco Bay Trail Plan

The San Francisco Bay Trail Plan[8] and Enhanced San Francisco Bay Area Water Trail Plan[9] provide guidance to the development of a shared-use bicycle and pedestrian path that will in the future allow continuous travel around the San Francisco Bay. The Project study area represents a

[8] Association of Bay Area Governments, 1989. San Francisco Bay Trail Plan.
[9] California Coastal Conservancy, 2011. Enhanced San Francisco Bay Area Water Trail Plan.

gap in the trail separating the existing segments northwest of Redwood Creek and southeast of Seaport Boulevard.

4.14.5 Significance Criteria

The criteria for evaluating the significance of a Project's environmental impacts are based on the California Environmental Quality Act (CEQA) Guidelines Appendix G and applicable standards and policies of Redwood City and C/CAG. For this analysis, transportation impacts are considered significant if the Project would:

a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

b) Conflict with an applicable congestion management program, including, but not limited to, level of service (LOS) standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

e) Result in inadequate emergency access; or

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The following criteria are derived from Appendix G of the State CEQA Guidelines and from prior traffic studies conducted with the City of Redwood City that established LOS D as the minimum acceptable threshold for signalized and unsignalized intersections. This policy applies Citywide, except the Downtown area, as defined by the Downtown Precise Plan, and some intersections in the congestion management program network. However, the LOS threshold for all Project study intersections is LOS D. C/CAG has developed LOS thresholds for freeway segments as part of their Congestion Management Program (CMP).

To evaluate project-level and cumulative impacts at study intersections and freeway segments and ramps, the following specific thresholds derived from C/CAG Guidelines, the Redwood City General Plan, and City best practices were used. The addition of Project-generated traffic would create a significant traffic impact if, the Project would:

- Cause an intersection operating acceptably without the Project to exceed the applicable LOS threshold;
- Increase the average delay at a signalized intersection operating at an unacceptable level by five or more seconds;

- Increase the delay at an unsignalized intersection operating at an unacceptable level by five or more seconds; and the traffic volumes at the intersection satisfy the Caltrans Peak Hour Volume Signal Warrant for traffic signal installation;
- Cause a freeway segment currently meeting its CMP LOS standard to not to meet that standard;
- Increase the amount of traffic on a freeway segment already exceeding its CMP LOS standard and/or its capacity by more than one percent of the freeway segment's capacity;
- Cause the volume-to-capacity (V/C) ratio for a freeway ramp to exceed 1.00; or
- Increase traffic on a freeway ramp with a V/C ratio already exceeding 1.00 by more than five percent of its capacity.

In addition to traffic operations, the Project would create a significant impact if it would cause the following to occur:

- Substantially increase traffic hazards due to a design feature (e.g., sharp curves or dangerous intersections);
- Conflict with any existing or approved pedestrian, transit, and/or bicycle facilities or services;
- Cause pedestrian, transit, and/or bicycle facilities to be frequently blocked by cars or other potential safety obstructions/hazards;
- Cause vehicles to cross pedestrian or bicycle facilities on a regular basis at driveway entrances lacking adequate sight distance or warning systems;
- Encourage pedestrians to cross roads in undesignated areas;
- Result in inadequate emergency access by substantially increasing emergency vehicle travel times; or
- Result in unsafe or hazardous conditions during construction.

4.14.6 Proposed Project Impacts

This section includes a project-level and cumulative analysis of the Project.

Project Conditions

This section evaluates the transportation-related impacts of the Project under Existing Plus Project conditions.

Vehicle Circulation Improvements

The Project would reconfigure Blomquist Street to include a two-way left-turn lane to facilitate left-turning vehicles into and out of Project driveways. These improvements would be required to provide adequate vehicle access to the Project as the existing infrastructure could not support the level of traffic generated by a Project of this size.

The Project proposes two driveways along Blomquist Street and one driveway from Seaport Boulevard via Lyngso Lane and Stein Am Rhein Court. Left-turn pockets into the Project site at each driveway would facilitate ingress to the Project site.

Traffic operations for Existing Plus Project with Blomquist Extension conditions include improvements included in the Redwood City Traffic Impact Fee (TIF) Program, such as the roundabout at Blomquist Street / Maple Street and the Blomquist Street extension between Maple Street and East Bayshore Road. Other network changes include constructing a Class I path along the project frontage and constructing a Class I path along Old Seaport Boulevard from US 101 to the intersection of Blomquist Street/Seaport Boulevard/East Bayshore Road.

Vehicle Trip Generation Estimates

Vehicle trip estimates for the Project were developed using the locally sensitive trip generation methodology known as MXD+. The MXD+ method accounts for built environment factors such as the density and diversity of land uses, design of the pedestrian and bicycling environment, demographics of the site, and distance to transit to develop more realistic trip generation estimates than traditional traffic engineering methods. As shown in **Table 4.14-7**, the Project is anticipated to generate approximately 8,090 daily, 1,254 AM peak hour and 1,282 PM peak hour net new vehicle trips.

TABLE 4.14-7
PROJECT VEHICLE TRIP GENERATION SUMMARY

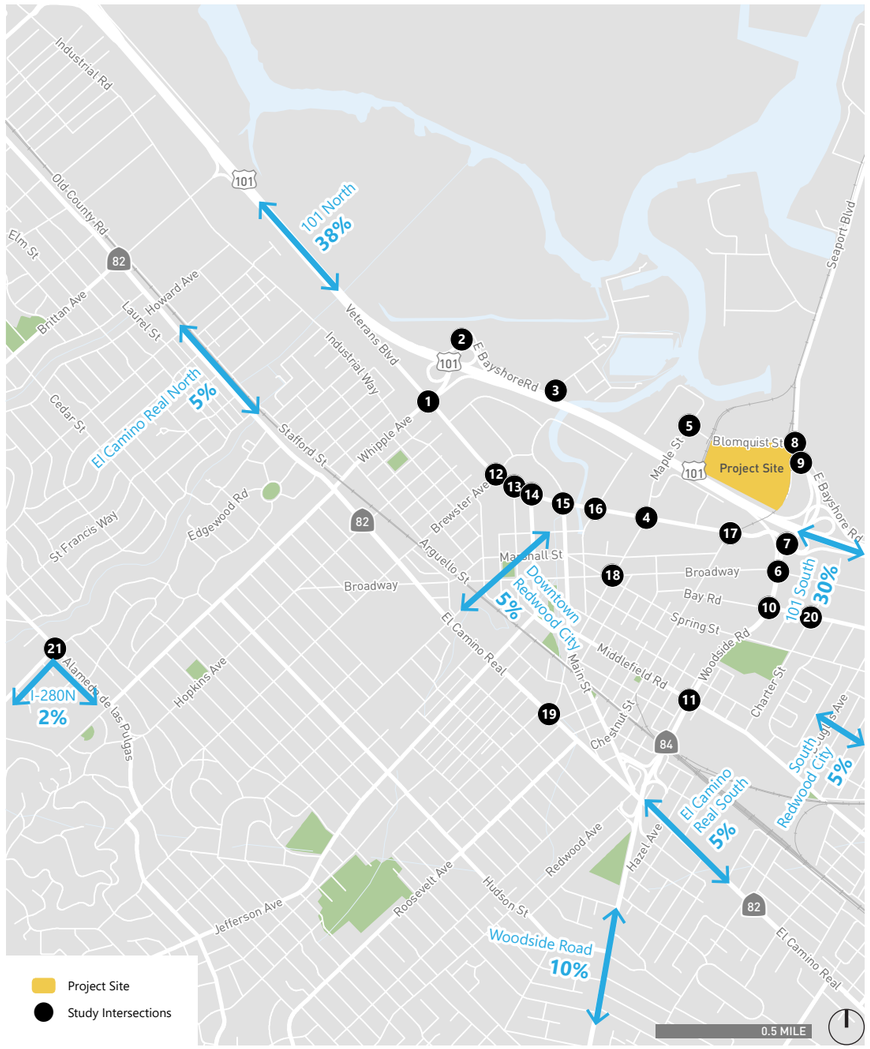
					AM Peak Hour Trips			PM Peak Hour Trips		
Land Use[a]	**Quantity**	**Units[b]**	**ITE Code[c]**	**Daily Trips**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
General Office Building	1,145	ksf	710	8,372	1,184	161	1,345	231	1,130	1,361
MXD+ Vehicle Trip Reductions[d]				*-282*	*-80*	*-11*	*-91*	*-13*	*-66*	*-79*
Net External Vehicle Trips[e]				**8,090**	**1,104**	**150**	**1,254**	**218**	**1,064**	**1,282**

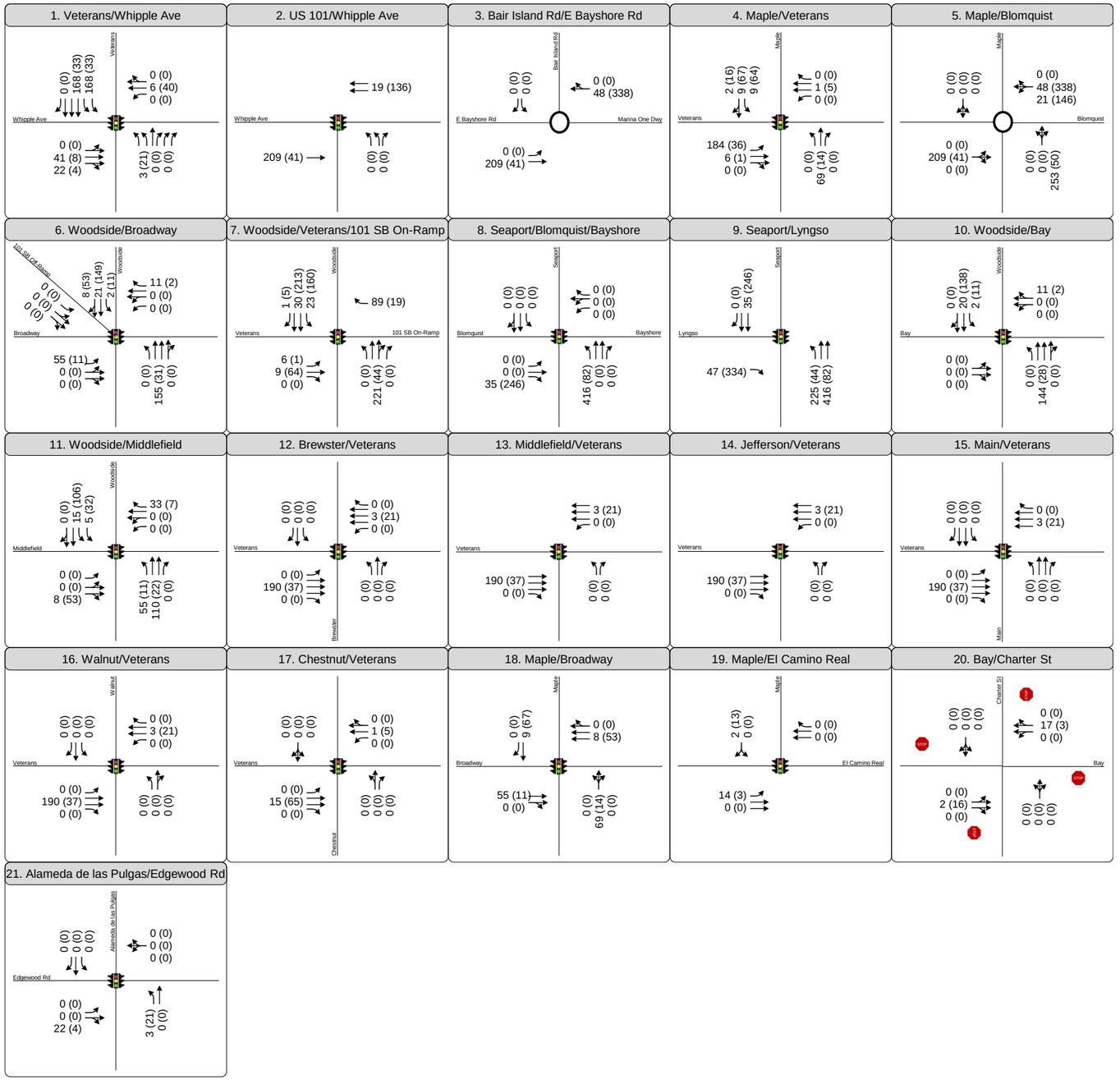
NOTES:
[a] On-site amenities (35 ksf) are considered ancillary uses and are not analyzed as separate uses for trip generation purposes
[b] ksf = 1,000 square feet.
[c] Trip generation rates are from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* 9th Edition.
[d] MXD+ vehicle trip reductions account the fact that the vehicle trip rates in the ITE *Trip Generation Manual* exaggerate the trip generation for offices with surrounding land uses (i.e. downtown) and access to transit similar to the Project.
[e] The Project includes the removal of the existing Lyngso Lane Garden Materials. This land use currently generates between 20 and 30 vehicle trips during the AM and PM peak hours. For the purposes of producing a conservative analysis, this trip reduction was excluded.

SOURCE: Fehr & Peers, 2018.

Vehicle Trip Distribution

Trip distribution is defined as the directions of approach and departure that vehicles would use to arrive at and depart from the Project site. The vehicle trip distribution pattern shown on **Figure 4.14-5** was developed using the travel patterns from the Santa Clara Valley Transportation Authority and the San Mateo City/County Association of Governments travel demand model (VTA-C/CAG model) and knowledge of local patterns.





LEGEND

AM (PM) Peak Hour Traffic Volume

Lane Configuration

Stop Sign

Signalized

SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-5

Peak Hour Traffic Volumes and Lane Configurations – Project Trip Distribution and Assignment

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Vehicle Trip Assignment

Vehicle trips generated by the Project were assigned to the roadway system based on the trip distribution pattern shown on Figure 4.14-5 for conditions with and without the Blomquist Extension. Vehicle trips entering and exiting the Project site were distributed to the two proposed driveways on Blomquist Street and one driveway on Lyngso Lane based on the amount of parking accessible from each driveway and the origins/destinations of the trips. As described earlier, no left-turns would be allowed from Lyngso Lane to northbound Seaport Boulevard with the Project in place. Therefore, existing vehicle trips using Lyngso Lane would shift to Blomquist Street under Existing Plus Project Conditions. Volumes used in the evaluation of Existing Plus Project Conditions are presented on **Figure 4.14-6** for conditions without the Blomquist extension and **Figure 4.14-7** for conditions with the Blomquist extension.

Vehicle Miles Traveled

Daily Vehicle Miles Traveled (VMT) is estimated by multiplying the number of daily vehicle trips generated by the Project by the average trip length. VMT can be calculated using travel demand forecasting models and other accounting-type methods. In January 2018, Fehr & Peers submitted a *Daily VMT Thresholds and Calculations Methods Memorandum* outlining possible models and tools that could be used to establish VMT thresholds of significance, which have not yet been adopted by the City. Given that thresholds and methodology have not yet been established by the City, the purpose of this VMT assessment is for informational purposes only.

For this study, typical weekday VMT was calculated using the MainStreet platform methodology. Mainstreet utilizes the MXD+ mixed-use trip generation model to develop vehicle trip estimates, which are then multiplied by vehicle trip length estimates obtained from surveys and regional travel demand forecasting models to develop VMT estimates. These surveys include the California Household Travel Survey (CHTS) and National Household Travel Survey (NHTS).

A summary of VMT generated by the Project is provided in **Table 4.14-8**. Based on average trip length and employee estimate for the Project, each employee would produce an estimated weekday daily VMT of 25.9 traveling to and from the Project, which was provided by the 2012 CHTS. This compares to the San Mateo County average of 27.1 and the Bay Area regional average of 22.7. The Project would generate an estimated weekday daily VMT of 88,990 miles based on the employee estimates.

TABLE 4.14-8
PROJECT GENERATED VMT ESTIMATES

Daily Vehicle Trips	Total Daily VMT Generated	Employee Estimate[a]	VMT Per Employee
8,090	88,990	3,434	25.9

[a] Employee estimates based on ITE Trip Generation estimates for employees per 1,000 square feet of office

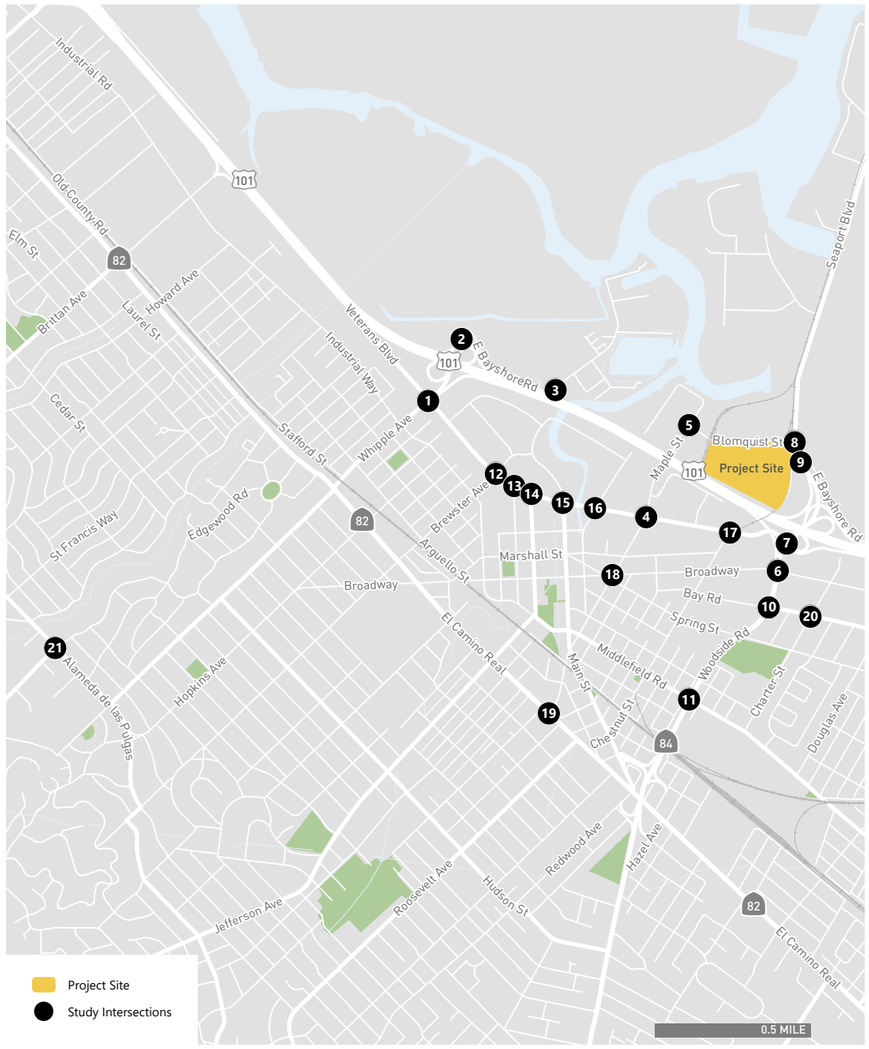
SOURCE: Fehr & Peers, 2018.

Truck Assessment

Existing truck volume counts were collected at the study locations on a typical weekday in April 2017. Blomquist Street between Maple Street and Seaport Boulevard serves as a heavily utilized truck corridor, given the location of the Graniterock site and similar adjacent uses. The count data shows that trucks primarily use Blomquist Street to travel to Seaport Boulevard, allowing vehicles to access US 101 and SR 84. At the intersection of Seaport Boulevard and Blomquist Street, 542 trucks were counted using the intersection during the two hour AM peak period, and 128 trucks in the two hour PM peak period. During the AM peak period, approximately 50 percent of northbound left turning and eastbound right turning vehicles and at Seaport / Blomquist were heavy vehicles. Both movements correspond to inbound and outbound trips made to the existing Graniterock site and adjacent uses. In the PM period, there is a significantly lower percentage of trucks making these movements. Only two percent of eastbound right turning vehicles and five percent of northbound left turning vehicles were identified as trucks. These counted volumes imply that the PM period has significantly less truck activity compared to the AM period.

The intersection of Maple Street and Blomquist Street has relatively low truck volumes compared to Seaport / Blomquist with 46 trucks using this intersection during the AM peak period and 27 trucks during the PM peak period. During the AM peak period the northbound right volume, representing inbound trips to the Graniterock site, consisted of four percent trucks while the outbound westbound left movement consisted of seven percent trucks. During the PM peak period, four percent of northbound right and two percent of westbound left volumes were trucks.

A truck turning assessment using a WB-40 design vehicle was conducted for the proposed Blomquist Street design to ensure that trucks would be able to access Graniterock driveways on the north side of Blomquist, as well as the proposed Project driveways on the south side. The redesigned Blomquist Street would consist of one 12-foot-wide westbound travel lane, a 14-foot center two-way left-turn lane, a 12-foot eastbound travel lane and 6-foot bike lanes in each direction. Turning movements were tested for both eastbound and westbound vehicles on Blomquist Street. As part of the Blomquist Street extension and redesign, a roundabout is proposed to replace the stop-controlled intersection of Maple Street and Blomquist Street. The proposed roundabout is designed to accommodate a WB-40 design vehicle and no conflicts are expected. All turning movements assumed a turning speed of six miles per hour. Under these conditions, there were no turning conflicts with the proposed Blomquist Street design when evaluated with a WB-40 vehicle. Sample truck turning templates are shown in **Appendix F.6**.



LEGEND

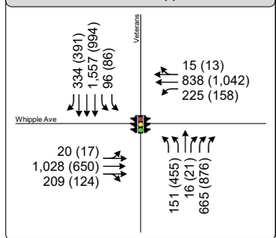
AM (PM) Peak Hour Traffic Volume

Lane Configuration

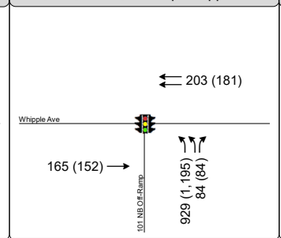
Stop Sign

Signalized

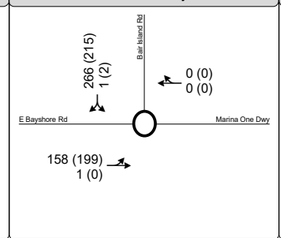
1. Veterans/Whipple Ave



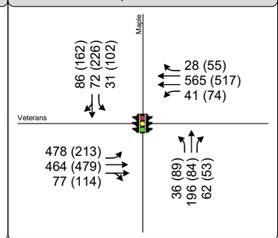
2. US 101 NB Off-Ramp/Whipple Ave



3. Bair Island Rd/E Bayshore Rd



4. Maple/Veterans



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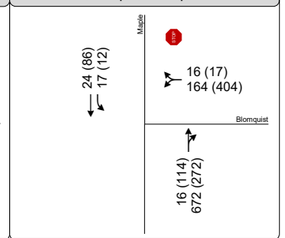
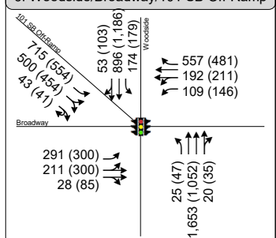
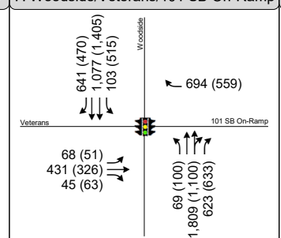


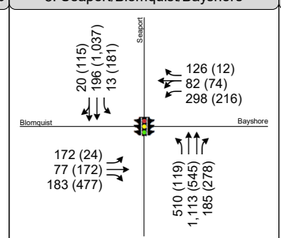
6. Woodside/Broadway/101 SB Off-Ramp



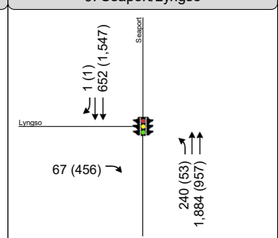
7. Woodside/Veterans/101 SB On-Ramp



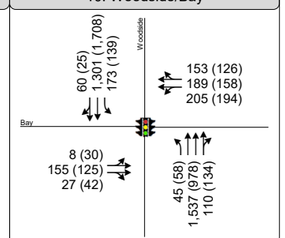
8. Seaport/Blomquist/Bayshore



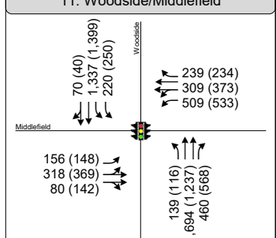
9. Seaport/Lyngso



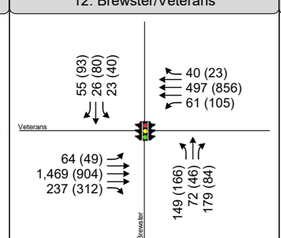
10. Woodside/Bay



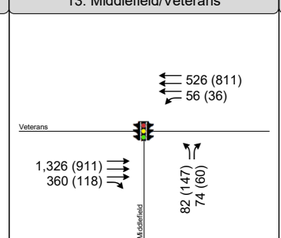
11. Woodside/Middlefield



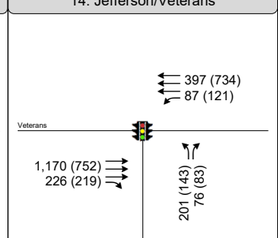
12. Brewster/Veterans



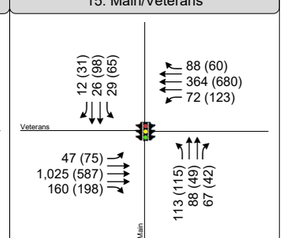
13. Middlefield/Veterans



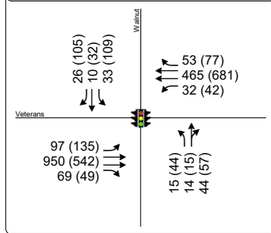
14. Jefferson/Veterans



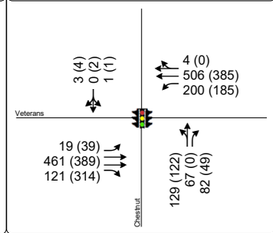
15. Main/Veterans



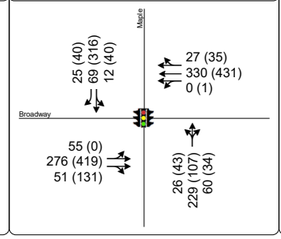
16. Walnut/Veterans



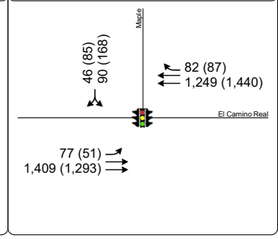
17. Chestnut/Veterans



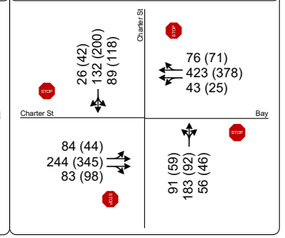
18. Maple/Broadway



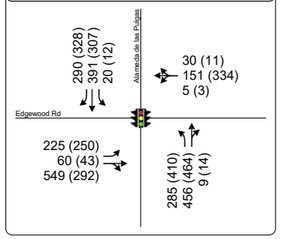
19. Maple/El Camino Real



20. Bay/Charter St



21. Alameda de las Pulgas/Edgewood Rd

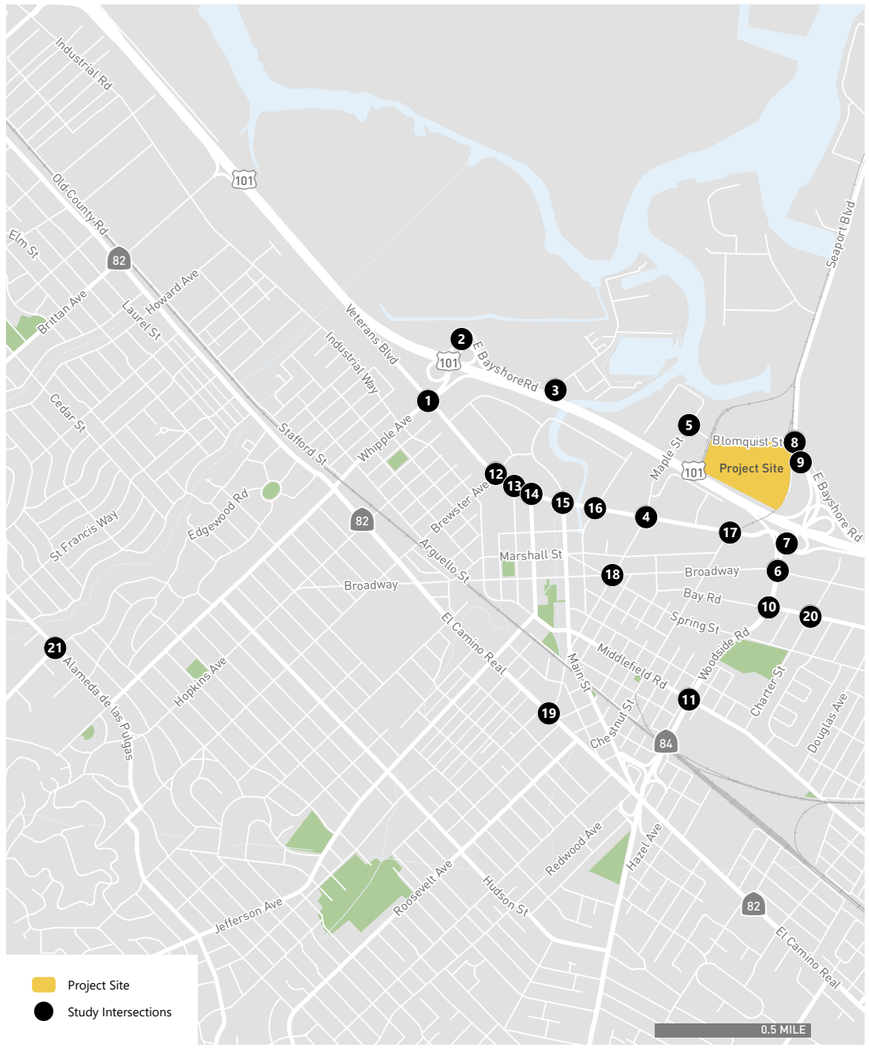


SOURCE: Fehr & Peers

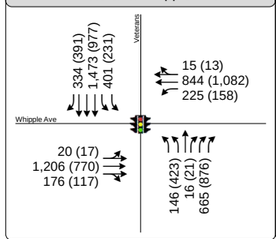
Harbor View Project . 170951

Figure 4.14-6

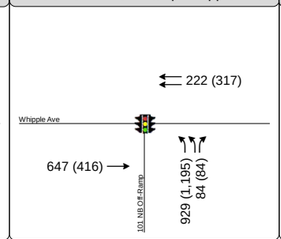
Peak Hour Traffic Volumes and Lane Configurations – Existing Plus Project Conditions



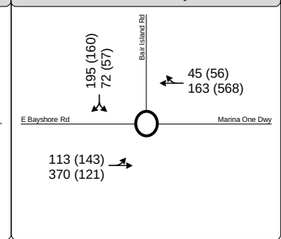
1. Veterans/Whipple Ave



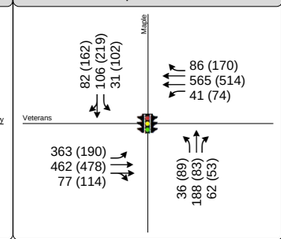
2. US 101 NB Off-Ramp/Whipple Ave



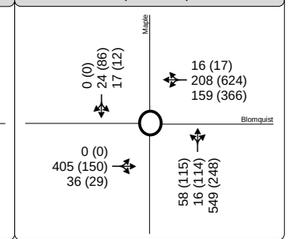
3. Bair Island Rd/E Bayshore Rd



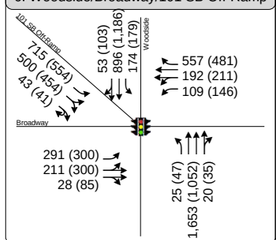
4. Maple/Veterans



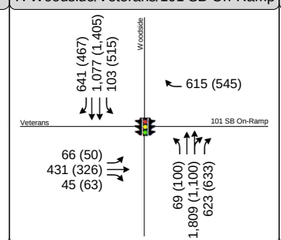
5. Maple/Blomquist



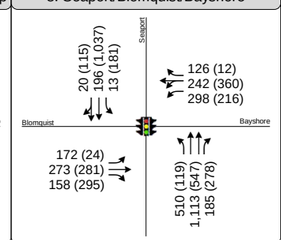
6. Woodside/Broadway/101 SB Off-Ramp



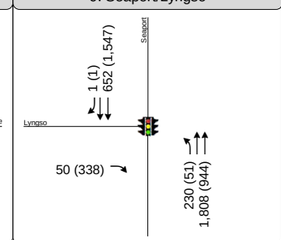
7. Woodside/Veterans/101 SB On-Ramp



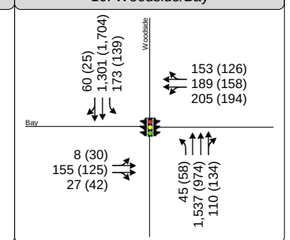
8. Seaport/Blomquist/Bayshore



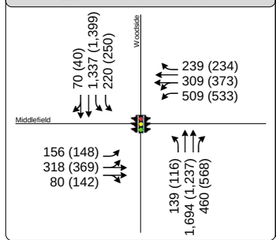
9. Seaport/Lyngso



10. Woodside/Bay



11. Woodside/Middlefield



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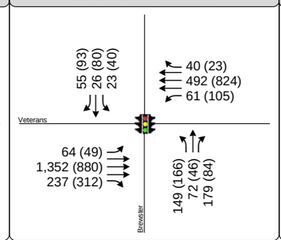
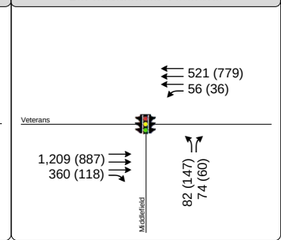
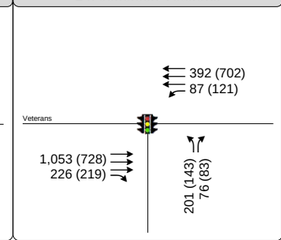


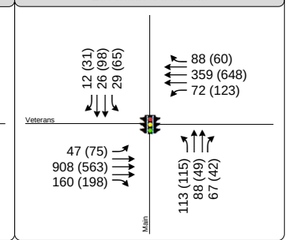
13. Middlefield/Veterans



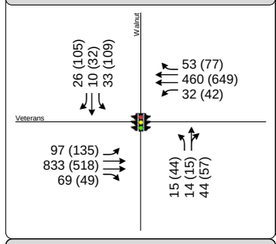
14. Jefferson/Veterans



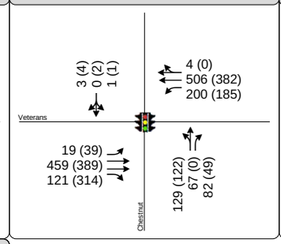
15. Main/Veterans



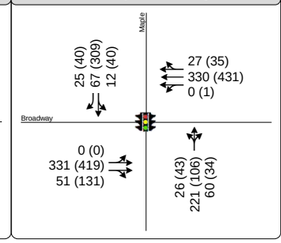
16. Walnut/Veterans



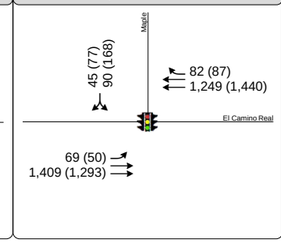
17. Chestnut/Veterans



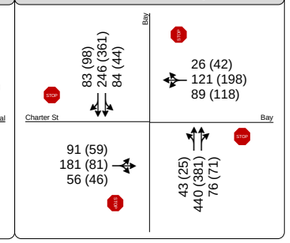
18. Maple/Broadway



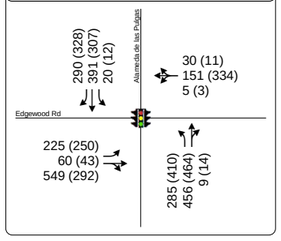
19. Maple/El Camino Real



20. Charter St/Bay



21. Alameda de las Pulgas/Edgewood Rd



LEGEND

- AM (PM) Peak Hour Traffic Volume
- Lane Configuration
- Stop Sign
- Signalized

SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-7

Peak Hour Traffic Volumes and Lane Configurations – Existing Plus Project Conditions (with Blomquist Extension)

4.14.7 Existing Plus Project Conditions

This section presents the results of the intersection and freeway level of service analysis for Existing Plus Project Conditions with and without the Blomquist extension. Existing Conditions form the baseline against which project-related impacts are evaluated.

Intersection Operations – Existing Plus Project (No Blomquist Extension)

This scenario evaluated the Project's impact on traffic operations in the study area with the existing roadway system (i.e., without the Blomquist extension). Existing intersection volumes plus new vehicle trips due to the Project are show on **Figure 4.14-6**. Existing Plus Project intersection operations are shown in **Table 4.14-9**.

Implementation of the Project would contribute traffic and worsen traffic operations from acceptable levels to unacceptable levels, or increase delay by more than five seconds at study intersections that currently operate at unacceptable levels of service, at the following locations:

7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp – PM Peak Hour
8. Seaport Boulevard / Blomquist Street / East Bayshore Road – PM Peak Hour
9. Seaport Boulevard / Lyngso Lane – PM Peak Hour
11. Woodside Road / Middlefield Road – AM and PM Peak Hour
21. Edgewood Road / Alameda de las Pulgas – AM Peak Hour

Therefore, the Project's impact at these study intersections is significant and mitigation is required.

The intersections along Woodside Road are closely spaced with interconnected signals, with reoccurring vehicle queues extending between US 101 and Middlefield Road. Traffic demand from the US 101 interchange exceeds the corridor capacity throughout the AM and PM peak periods, causing breakdowns in traffic flow and bottleneck locations to shift among intersections due to fluctuations in traffic volumes as platoons of vehicles move through the corridor. The City's significance criteria is appropriate for individual isolated intersections, and may not identity Project impacts on congested corridors. Therefore, the following impact statement addresses intersections on Woodside Road between US 101 and Middlefield Road because changes at one location will have downstream or upstream affects that could underrepresent the Project's impacts at those locations (e.g., a bottleneck worsens at one location, thus limiting the number of vehicles at a downstream intersection and seemingly improving its operations).

TABLE 4.14-9
EXISTING PLUS PROJECT INTERSECTION WITH BLOMQUIST LOS RESULTS

Intersection	Control	Peak Hour	Existing		Existing Plus Project (No Blomquist Extension)		Existing Plus Project (With Blomquist Extension)	
			Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Veterans Boulevard / Whipple Avenue	Signal	AM	39	D	53	D	**67**	**E**
		PM	35	C	37	D	38	D
2. Whipple Avenue / US 101 Northbound Off-Ramp	Signal	AM	14	B	14	B	14	B
		PM	19	B	19	B	17	B
3. Bair Island Road/East Bayshore Road	Roundabout	AM	<10	A	<10	A	<10	A
		PM	<10	A	<10	A	11	B
4. Maple Street/Veterans Boulevard	Signal	AM	19	B	28	D	33	C
		PM	22	C	26	C	22	C
5. Blomquist Street / Maple Street	SSS/ Roundabout[c]	AM	<10	A	<10	A	<10	A
		PM	<10	A	12	B	23	C
6. Broadway / Woodside Road / US 101 Southbound Off-Ramp [d,e]	Signal	AM	**>80**	**F**	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp [e,f]	Signal	AM	32	C	39	D	29	C
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
8. Blomquist Street / Seaport Boulevard / East Bayshore Road	Signal	AM	26	C	38	D	**75**	**E**
		PM	33	C	**>80**	**F**	**>80**	**F**
9. Seaport Boulevard / Lyngso Lane	SSS	AM	28	D	12	B	11	B
		PM	**>50**	**F**	**>50**	**F**	**>50**	**F**
10. Woodside Road/Bay Road	Signal	AM	**>80**	**F**	**>80**	**F**	**>80**	**F**
		PM	36	D	30	C	26	C
11. Woodside Road / Middlefield Road	Signal	AM	**76**	**E**	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
12. Veterans Boulevard/Brewster Avenue	Signal	AM	26	C	27	C	27	C
		PM	26	C	26	C	26	C
13. Veterans Boulevard/Middlefield Road	Signal	AM	10	A	10	B	<10	A
		PM	<10	A	<10	A	<10	A
14. Veterans Boulevard/Jefferson Avenue	Signal	AM	19	B	20	B	19	B
		PM	14	B	13	B	14	B
15. Veterans Boulevard/Main Street	Signal	AM	16	B	26	C	18	B
		PM	19	B	18	B	19	B
16. Veterans Boulevard/Walnut Street	Signal	AM	22	C	22	C	22	C
		PM	32	C	32	C	32	C
17. Veterans Boulevard/Chestnut Street	Signal	AM	45	D	43	D	42	D
		PM	20	B	19	B	18	B
18. Maple Street/Broadway	Signal	AM	17	B	17	B	17	B
		PM	16	B	17	B	18	B
19. Maple Street/El Camino Real	Signal	AM	<10	A	10	B	10	B
		PM	13	B	15	B	14	B
20. Bay Road/Charter Street	AWS	AM	31	D	32	D	32	D
		PM	24	C	23	C	25	C
21. Edgewood Road/Alameda de las Pulgas	Signal	AM	53	D	**56**	**E**	**56**	**E**
		PM	**57**	**E**	**59**	**E**	**59**	**E**

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact.

[a] For signalized intersections, all way stop (AWS) intersections, and roundabouts, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.

[c] This intersection would be converted to a roundabout with the Blomquist Street extension in place.

[d] Traffic generated by the Project increases delay at this intersection from 206 seconds to 214 seconds in the AM peak hour and decreases delay from 136 seconds to 95 seconds in the PM peak hour.

[e] The vehicle delay is shown to slightly decrease at some intersections that operate far over capacity (LOS F conditions) due to increased upstream congestion that can limit the amount of traffic that reaches the intersection (due to new bottlenecks) or change the traffic patterns approaching this intersection (due to platoons of cars arriving at once) during the peak hours. Simulation models with intersections that operate above capacity (LOS F) are highly variable (as described in the HCM 2000 Exhibit 16-14) and small changes in traffic flow can affect the vehicle delay.

[f] Traffic generated by the Project increases delay at this intersection from 93 seconds to 108 seconds in the PM peak hour.

SOURCE: Fehr & Peers, 2018.

Impact TRANS-1: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Potentially Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at intersection #7 Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp, which currently operate at LOS F. The resulting worsened bottlenecks at these locations would limit the number of vehicles at downstream intersections currently operating at LOS F such as #6 Broadway / Woodside Road / US 101 Southbound Off-Ramp and #10 Woodside Road/Bay Road.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-1:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

Implementation of Mitigation Measure TRANS-1 and construction of the US 101/SR 84 interchange improvements would improve operations along the Woodside Road corridor and would reduce the impact to less than significant levels at intersection #7 Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

> **Significance after Mitigation:** Significant and Unavoidable

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Impact TRANS-2: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Potentially Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at intersection #11 Woodside Road / Middlefield Road, which currently operate at LOS F.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-2A:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84

Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

In addition to the capacity increase along Woodside Road as outlined in Mitigation Measure TRANS-2A, an additional mitigation measure would be required to improve intersection operations at the intersection of Woodside Road / Middlefield Road.

Mitigation Measure TRANS-2B: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct geometric changes to the westbound (Middlefield) approach at Woodside Road / Middlefield Road to the satisfaction of the City, including two left-turn pockets of 400 feet, one through lane, and a shared through-right lane pocket of 100 feet.

Implementation of this mitigation measure would improve operations at the Woodside Road / Middlefield Road study intersection in both the AM and PM peak hours and would reduce impacts to less than significant levels. However, the geometric changes listed in Mitigation Measure TRANS-2B are not consistent with recently constructed and future City plans at this location.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-3: The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the PM peak hour under Existing Plus Project without Blomquist Extension Conditions (Criteria a and b). (Significant)

Mitigation Measure TRANS-3A: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall reconstruct the westbound approach of East Bayshore to accommodate two left-turn lanes with 225-foot pockets, one through lane, and an extended right-turn pocket (from 50 feet to 150 feet). In addition, the applicant shall install a second eastbound right-turn pocket on Blomquist Street. Improvements shall be constructed to the satisfaction of the City.

Implementing Mitigation Measure TRANS-3A would improve operations of this intersection to LOS D during the AM peak hour, however the intersection would still operate at an unacceptable LOS E during the PM peak hour. The addition of a second right-turn pocket would conflict with the City's pedestrian safety goals. The applicant shall reserve sufficient space within their property to accommodate the addition of a second right-turn pocket should the City desire to make that change in the future.

Significance after Mitigation: Significant and Unavoidable

Mitigation Measure TRANS-3B: As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, it is unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-4: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operate at LOS F in the PM peak hour under Existing Plus Project Conditions without Blomquist Extension Conditions (Criteria a and b). (Significant)

This intersection with side-street stop control would not be able to accommodate the amount of Project traffic entering and exiting the site at this location. **The traffic volumes meet the criteria for the peak hour traffic signal warrant.**

Mitigation Measure TRANS-4: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall install a new actuated traffic signal at the intersection of Seaport Boulevard/Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns.

With implementation of Mitigation Measure TRANS-4 alone, the intersection still operates at unacceptable levels in the PM peak hour. However, with implementation of Mitigation Measure TRANS-4 in combination with Mitigation Measure TRANS-1, the intersection delay is reduced to acceptable levels. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-5: The Project would add traffic to intersection #21 Edgewood Road / Alameda de Las Pulgas and would cause this intersection to degrade from acceptable operations of LOS D to unacceptable operations of LOS E in the AM peak hour under Existing Plus Project Conditions (Criteria a and b). (Significant)

The worsening of traffic conditions at this location is due to the increase in eastbound traffic destined for the Project site from Interstate 280.

Mitigation Measure TRANS-5: Prior to receiving the first certificate of occupancy for the Project, improvements to signal operations shall be made by the Project applicant at the intersection of Edgewood Road/Alameda de Las Pulgas, to the satisfaction of City.

The eastbound and westbound (Edgewood Road) signal phasing shall be reprogrammed from split phasing to concurrent permissive phases, allowing for eastbound and westbound through vehicles to travel concurrently. This phasing modification would also change the eastbound and westbound left-turn movements from protected to permissive. Additionally, appropriate signage (E.g. "Left turn yield on green") to support the change shall be added to the eastbound and westbound approaches.

Significance after Mitigation: Less than Significant

Intersection Operations – Existing Plus Project (with Blomquist Extension)

This scenario evaluated the Project's impact on traffic operations in the study area with the existing roadway system plus the Blomquist Street extension. This extension would provide additional vehicle access between existing properties along Bair Island Road and East Bayshore Road north of Redwood Creek, Maple Street and Seaport Boulevard. Existing Plus Project intersection turning movement volumes include estimates of the existing vehicle trips that would shift to the Blomquist Street extension to access these properties. These modified existing intersection volumes plus new vehicle trips due to the Project are shown on **Figure 4.14-7**. Existing Plus Project intersection operations are shown in **Table 4.14-9**.

Implementation of the Project would contribute traffic and worsen traffic operations from acceptable levels to unacceptable levels, or increase delay by more than five seconds at study intersections that currently operate at unacceptable levels of service, at the following locations:

1. Veterans Boulevard / Whipple Road – AM peak hour
7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp – PM peak hour
8. Blomquist Street / Seaport Boulevard / East Bayshore Road – AM and PM peak hours
9. Seaport Boulevard / Lyngso Lane – PM Peak Hour
11. Woodside Road / Middlefield Road – AM and PM peak hours
21. Edgewood Road / Alameda de las Pulgas – AM Peak Hour

Therefore, the Project's impact at these study intersections is significant and mitigation is required.

Impact TRANS-6: The Project would result in the addition of traffic to intersection #1 Veterans Boulevard / Whipple Road and would cause this intersection to degrade from LOS D to LOS E in the AM peak hour under Existing Plus Project Conditions (Criteria a and b). (Significant)

The worsening of traffic conditions at this location is due to the increase in southbound traffic destined for the Project site and the southbound US 101 on-ramp

Mitigation Measure TRANS-6: The Project applicant shall install improvements to signal operations at the intersection of Veterans Boulevard/Whipple Road, prior to receiving the first certificate of occupancy for the Project. Green time shall be added to the southbound (Veterans Boulevard) through movement (phase 6) and southbound left-turn movement (phase 1) while the green time for the northbound through movement (phase 2) and northbound left-turn movement (phase 5) shall be reduced during the AM peak hour. The overall cycle length shall be shortened from 125 to 120 seconds.

Significance after Mitigation: Less than Significant

The intersections along Woodside Road are closely spaced with interconnected signals, with reoccurring vehicle queues extending between US 101 and Middlefield Road. Traffic demand from the US 101 interchange exceeds the corridor capacity throughout the AM and PM peak periods, causing breakdowns in traffic flow and bottleneck locations to shift among intersections due to fluctuations in traffic volumes as platoons of vehicles move through the corridor. The City's significance criteria is appropriate for individual isolated intersections, and may not identity Project impacts on congested corridors. Therefore, the following impact statement addresses intersections on Woodside Road between US 101 and Middlefield Road because changes at one location will have downstream or upstream affects that could underrepresent the Project's impacts at those locations (e.g., a bottleneck worsens at one location, thus limiting the number of vehicles at a downstream intersection and seemingly improving its operations).

Impact TRANS-7: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #7) (Criteria a and b). (Potentially Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at intersection #7 Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp, which currently operate at LOS F. The resulting worsened bottlenecks at these locations would limit the number of vehicles at downstream intersections currently operating at LOS F such as #6 Broadway / Woodside Road / US 101 Southbound Off-Ramp and #10 Woodside Road/Bay Road.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

Mitigation Measure TRANS-7: The Project applicant shall contribute its fair share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

Implementation of Mitigation Measure TRANS-7 and construction of the US 101/SR 84 interchange improvements would improve operation along the Woodside Road corridor and would reduce the impact to less than significant levels at intersection #7 Veterans Boulevard /

Woodside Road / US 101 Southbound On-Ramp. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-8: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #11) (Criteria a and b). (Potentially Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at intersection #11 Woodside Road / Middlefield Road, which currently operate at LOS F.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-8A:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

In addition to the capacity increase along Woodside Road as outlined in Mitigation Measure TRANS-8A, an additional mitigation measure would be required to improve intersection operations at the intersection of Woodside Road / Middlefield Road.

> **Mitigation Measure TRANS-8B:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct geometric changes to the westbound (Middlefield) approach at Woodside Road / Middlefield Road to the satisfaction of the City, including two left-turn pockets of 400 feet, one through lane, and a shared through-right lane pocket of 100 feet.

Implementation of this mitigation measure would improve operations at the Woodside Road / Middlefield Road study intersection in both the AM and PM peak hours and would reduce impacts to less than significant levels. However, the geometric changes listed in Mitigation Measure TRANS-8B are not consistent with recently constructed and future City plans at this location.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-9: The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the AM and PM peak hours under Existing Plus Project Conditions (Criteria a and b). (Significant)

> **Mitigation Measure TRANS-9A:** Prior to receiving the first certificate of occupancyfor the Project, the Project applicant shall reconstruct the westbound (East Bayshore Road) approach at the intersection of Blomquist Street/Seaport Boulevard/East Bayshore Road to accommodate two left-turn lanes with 225-foot pockets, one through lane, and an extended right-turn pocket (from 50 feet to 150 feet). In addition, the applicant shall install a second eastbound (Blomquist Street) right-turn pocket. Improvements shall be constructed to the satisfaction of the City.

Implementing Mitigation Measure TRANS-9A would improve operations of this intersection to LOS D during the AM peak hour, however the intersection would still operate at an unacceptable LOS E during the PM peak hour. The addition of a second eastbound right-turn pocket would conflict with the City's pedestrian safety goals. The applicant shall reserve sufficient space within their property to accommodate the addition of a second right-turn pocket should the City desire to make that change in the future.

> **Significance after Mitigation:** Significant and Unavoidable

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> **Mitigation Measure TRANS-9B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, it is unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

> **Significance after Mitigation:** Significant and Unavoidable

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Impact TRANS-10: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operates at LOS F in the PM peak hour under Existing Plus Project Conditions with Blomquist Extension Conditions (Criteria a and b). (Significant)

This intersection with side-street stop control would not be able to accommodate the amount of Project traffic entering and exiting the site at this location. **The traffic volumes meet the criteria for the peak hour traffic signal warrant.**

> **Mitigation Measure TRANS-10:** Prior to receiving the first certificate of occupancy ro the Project, the Project applicant shall install a new actuated traffic signal at the intersection of Seaport Boulevard/Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with

the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns.

With implementation of Mitigation Measure TRANS-10 alone, the intersection still operates at unacceptable levels in the PM peak hour. However, with implementation of Mitigation Measure TRANS-10 in combination with Mitigation Measure TRANS-7, the intersection delay is reduced to acceptable levels. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-11: The Project would add traffic to intersection #21 Edgewood Road / Alameda de Las Pulgas and would cause this intersection to degrade from acceptable operations of LOS D to unacceptable operations of LOS E in the AM peak hour under Existing Plus Project Conditions with Blomquist Extension (Criteria a and b). (Significant)

The worsening of traffic conditions at this location is due to the increase in eastbound traffic destined for the Project site from Interstate 280.

Mitigation Measure TRANS-11: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall make improvements to signal operations at the intersection of Edgewood Road/Alameda le Las Pulgas to the satisfaction of the City. The eastbound and westbound (Edgewood Road) signal phasing should be reprogrammed from split phasing to concurrent permissive phases. This phasing allows for eastbound and westbound through vehicles to travel concurrently. This phasing modification would also change the eastbound and westbound left-turn movements from protected to permissive. Additionally, appropriate signage (E.g. "Left turn yield on green") to support the change shall be added to the eastbound and westbound approaches.

Significance after Mitigation: Less than Significant

Freeway Operations – Existing Plus Project (No Blomquist Extension)

The study freeway segments and ramps on US 101 were analyzed to determine if added traffic resulting from the Project would significantly impact the freeway system. This scenario studied the Project's impact on freeway operations in the study area with the existing roadway system (i.e. without the Blomquist extension). The results of the freeway segment and ramp capacity analyses are shown in **Table 4.14-10** and **Table 4.14-11**. Related impact and mitigation findings are identified below.

TABLE 4.14-10
EXISTING PLUS PROJECT NO BLOMQUIST EXTENSION FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing			Existing Plus Project No Blomquist Extension				
			Volume	V/C[a]	LOS	Added Trips	% of Cap.	Volume	V/C	LOS
A. US 101, north of Whipple Avenue	AM	Northbound	8,198	0.89	E	57	0.6%	8,255	0.90	E
		Southbound	9,020	0.98	E	420	4.6%	**9,440**	**1.03**	**F**
	PM	Northbound	7,750	0.84	D	404	4.4%	8,154	0.89	D
		Southbound	8,061	0.88	D	83	0.9%	8,144	0.89	D
B. US 101, south of Whipple Avenue	AM	Northbound	8,006	0.92	E	57	0.7%	8,063	0.93	E
		Southbound	8,080	0.93	E	168	1.9%	8,248	0.95	E
	PM	Northbound	7,228	0.83	D	404	4.6%	7,632	0.88	D
		Southbound	7,518	0.86	D	33	0.4%	7,551	0.87	D
C. US 101, south of Woodside Road	AM	Northbound	8,502	0.98	E	331	3.8%	**8,833**	**1.02**	**F**
		Southbound	7,797	0.90	E	45	0.5%	7,842	0.90	E
	PM	Northbound	7,159	0.82	D	65	0.7%	7,224	0.83	D
		Southbound	7,778	0.89	E	319	3.7%	8,097	0.93	E

NOTES: **Bold** = exceeds CMP LOS standard. **Shaded** = significant impact.
[a] V/C = Volume to Capacity ratio.

SOURCE: Fehr & Peers, 2018.

Impact TRANS-12: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

A. Southbound US 101 north of Whipple Avenue – AM peak hour

C. Northbound US 101 south of Woodside Road – AM peak hour

(Criteria a and b). (Significant)

Mitigation of the Project contribution to these segments would require construction of an additional mixed flow and/or HOV lane on them. However, this widening may not be feasible due to right-of-way constraints and the City's lack of authority to independently implement (the freeway is under Caltrans jurisdiction). Therefore, this impact remains significant and unavoidable.

> **Mitigation Measure TRANS-12A**: The Project applicant shall exercise good faith efforts to work with Caltrans and the City to construct an additional mixed-flow and/or HOV lane on US 101 southbound north of Whipple and northbound south of Woodside Road.
>
> **Significance after Mitigation:** Significant and Unavoidable

TABLE 4.14-11
EXISTING PLUS PROJECT NO BLOMQUIST EXTENSION FREEWAY RAMP LOS RESULTS

Freeway Interchange and Ramp[a]		Peak Hour	Existing			Existing Plus Project No Blomquist Extension				
			Volume	V/C[b]	LOS	Added Trips	% of Cap.	Volume	V/C	LOS
US 101 / Woodside Road										
NB	Off-Ramp to Woodside Road	AM	1,719	0.86	D	331	**16.6%**	**2,050**	**1.03**	**F**
		PM	1,230	0.62	C	65	3.3%	1,295	0.65	C
	On-Ramp from Westbound Seaport Boulevard	AM	264	0.15	A	57	3.2%	321	0.18	A
		PM	579	0.32	B	404	22.4%	983	0.55	C
	On-Ramp from Eastbound Woodside Road	AM	1,093	0.61	C	0	0.0%	1,093	0.61	C
		PM	864	0.48	B	0	0.0%	864	0.48	B
SB	Off-Ramp to Eastbound Woodside Road	AM	526	0.29	A	168	9.3%	694	0.39	B
		PM	158	0.09	A	33	1.8%	191	0.11	A
	Off-Ramp to Westbound Woodside Road	AM	884	0.44	B	0	0.0%	884	0.44	B
		PM	1,008	0.50	C	0	0.0%	1,008	0.50	C
	On-Ramp from Woodside Road	AM	864	0.43	B	45	2.3%	909	0.45	B
		PM	1,239	0.62	C	319	16.0%	1,558	0.78	D
US 101 / Whipple Avenue										
NB	Off-Ramp to Whipple Avenue	AM	1,014	0.51	C	0	0.0%	1,014	0.51	C
		PM	1,282	0.64	C	0	0.0%	1,282	0.64	C
	On-Ramp from Eastbound Whipple Avenue	AM	1,029	0.57	C	0	0.0%	1029	0.57	C
		PM	924	0.51	C	0	0.0%	924	0.51	C
	On-Ramp from Westbound Whipple Avenue	AM	75	0.08	A	0	0.0%	75	0.08	A
		PM	69	0.08	A	0	0.0%	69	0.08	A
SB	Off-Ramp to Veterans Avenue/Whipple Avenue	AM	1,727	0.45	B	252	6.6%	1,979	0.52	C
		PM	1,355	0.36	B	50	1.3%	1,405	0.37	B
	On-Ramp from Westbound Whipple Avenue	AM	54	0.06	A	0	0.0%	54	0.06	A
		PM	165	0.18	A	0	0.0%	165	0.18	A
	On-Ramp from Eastbound Whipple Avenue	AM	595	0.30	A	0	0.0%	595	0.30	A
		PM	543	0.27	A	0	0.0%	543	0.27	A

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact.

[a] NB = Northbound US 101; SB = Southbound US 101
[b] V/C = Volume to Capacity ratio

Theoretical capacities of ramps per Exhibit 25-3 of HCM 200: 1,800 vehicles per hour (vph) for loop ramps, 2,000 vph for single-lane diagonal ramps, and 3,800 vph for dual-lane diagonal off-ramps.

SOURCE: Fehr & Peers, 2018.

> **Mitigation Measure TRANS-12B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, it is unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

> **Significance after Mitigation:** Significant and Unavoidable

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Impact TRANS-13: The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions (Criteria a and b). (Significant)

Mitigation of the Project impact would require additional capacity on the northbound US 101 off-ramp. Capacity improvements to the northbound Woodside Road off-ramp is included as a part of the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-13:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the northbound Woodside Road off-ramp and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

Implementation of Mitigation Measure TRANS-13 would increase capacity to the northbound US 101 off-ramp to Woodside Road and reduce the impact to a less than significant level. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

> **Significance after Mitigation:** Significant and Unavoidable

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Freeway Operations – Existing Plus Project (With Blomquist Extension)

The study freeway segments and ramps on US 101 were also analyzed to determine if added traffic resulting from the Project would significantly impact the freeway system under conditions with the Blomquist Street extension. The results of the freeway segment and ramp capacity analyses are shown in **Table 4.14-12** and **Table 4.14-13**. Related impact and mitigation findings are identified below.

TABLE 4.14-12
EXISTING PLUS PROJECT WITH BLOMQUIST EXTENSION FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Direction	Existing			Existing Plus Project With Blomquist Extension				
			Volume	V/C[a]	LOS	Added Trips	% of Cap.	Volume	V/C	LOS
A. US 101, north of Whipple Avenue	AM	Northbound	8,198	0.89	E	174	1.9%	8,372	0.91	E
		Southbound	9,020	0.98	E	557	6.1%	**9,577**	**1.04**	**F**
	PM	Northbound	7,750	0.84	D	634	6.9%	8,384	0.91	E
		Southbound	8,061	0.88	D	193	2.1%	8,254	0.90	E
B. US 101, south of Whipple Avenue	AM	Northbound	8,006	0.92	E	29	0.3%	8,035	0.92	E
		Southbound	8,080	0.93	E	98	1.1%	8,178	0.94	E
	PM	Northbound	7,228	0.83	D	202	2.3%	7,430	0.85	D
		Southbound	7,518	0.86	D	112	1.3%	7,630	0.88	D
C. US 101, south of Woodside Road	AM	Northbound	8,502	0.98	E	331	3.8%	**8,833**	**1.02**	**F**
		Southbound	7,797	0.90	E	46	0.5%	7,843	0.90	E
	PM	Northbound	7,159	0.82	D	65	0.7%	7,224	0.83	D
		Southbound	7,778	0.89	E	319	3.7%	8,097	0.93	E

NOTES: **Bold** = exceeds CMP LOS standard. **Shaded** = significant impact.
[a] V/C = Volume to Capacity ratio.

SOURCE: Fehr & Peers, 2018.

Impact TRANS-14: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

A. Southbound US 101 north of Whipple Avenue – AM peak hour

C. Northbound US 101 south of Woodside Road – AM peak hour

(Criteria a and b). (Significant)

Mitigation of the Project contribution to these segments would require construction of an additional mixed flow and/or HOV lane on them. However, this widening may not be feasible due to right-of-way constraints and the City's lack of authority to independently implement (the freeway is under Caltrans jurisdiction). Therefore, this impact remains significant and unavoidable.

> **Mitigation Measure TRANS-14A**: The Project applicant shall exercise good faith efforts to work with Caltrans and the City to construct an additional mixed-flow and/or HOV lane on US 101 southbound north of Whipple and northbound south of Woodside Road.
>
> **Significance after Mitigation:** Significant and Unavoidable

TABLE 4.14-13
EXISTING PLUS PROJECT WITH BLOMQUIST EXTENSION FREEWAY RAMP LOS RESULTS

Freeway Interchange and Ramp [a]		Peak Hour	Existing Volume	Existing V/C [b]	Existing LOS	Existing Plus Project With Blomquist Extension Added Trips	Existing Plus Project With Blomquist Extension % of Cap.	Existing Plus Project With Blomquist Extension Volume	Existing Plus Project With Blomquist Extension V/C	Existing Plus Project With Blomquist Extension LOS
US 101 / Woodside Road										
NB	Off-Ramp to Woodside Road	AM	1,719	0.86	D	331	**16.6%**	**2,050**	**1.03**	**F**
		PM	1,230	0.62	C	65	3.3%	1,295	0.65	C
	On-Ramp from Westbound Seaport Boulevard	AM	264	0.15	A	29	1.6%	293	0.16	A
		PM	579	0.32	B	202	11.2%	781	0.43	B
	On-Ramp from Eastbound Woodside Road	AM	1,093	0.61	C	0	0.0%	1,093	0.61	C
		PM	864	0.48	B	0	0.0%	864	0.48	B
SB	Off-Ramp to Eastbound Woodside Road	AM	526	0.29	A	84	4.7%	610	0.34	B
		PM	158	0.09	A	16	0.9%	174	0.10	A
	Off-Ramp to Westbound Woodside Road	AM	884	0.44	B	0	0.0%	884	0.44	B
		PM	1,008	0.50	C	0	0.0%	1,008	0.50	C
	On-Ramp from Woodside Road	AM	864	0.43	B	32	1.6%	896	0.45	B
		PM	1,239	0.62	C	223	11.2%	1,462	0.73	D
US 101 / Whipple Avenue										
NB	Off-Ramp to Whipple Avenue	AM	1,014	0.51	C	0	0.0%	1,014	0.51	C
		PM	1,282	0.64	C	0	0.0%	1,282	0.64	C
	On-Ramp from Eastbound Whipple Avenue	AM	1,029	0.57	C	0	0.0%	1029	0.57	C
		PM	924	0.51	C	0	0.0%	924	0.51	C
	On-Ramp from Westbound Whipple Avenue	AM	75	0.08	A	145	16.1%	220	0.24	A
		PM	69	0.08	A	432	48.0%	501	0.56	C
SB	Off-Ramp to Veterans Avenue/Whipple Avenue	AM	1,727	0.45	B	473	12.4%	2,200	0.58	C
		PM	1,355	0.36	B	177	4.7%	1,532	0.40	B
	On-Ramp from Westbound Whipple Avenue	AM	54	0.06	A	14	1.6%	68	0.08	A
		PM	165	0.18	A	96	10.7%	261	0.29	A
	On-Ramp from Eastbound Whipple Avenue	AM	595	0.30	A	0	0.0%	595	0.30	A
		PM	543	0.27	A	0	0.0%	543	0.27	A

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact.

[a] NB = Northbound US 101; SB = Southbound US 101
[b] V/C = Volume to Capacity ratio

Theoretical capacities of ramps per Exhibit 25-3 of HCM 200: 1,800 vehicles per hour (vph) for loop ramps, 2,000 vph for single-lane diagonal ramps, and 3,800 vph for dual-lane diagonal off-ramps.

SOURCE: Fehr & Peers, 2018.

Mitigation Measure TRANS-14B: As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, itis unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-15: The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions (Criteria a and b). (Significant)

Mitigation of the Project impact would require additional capacity on the northbound US 101 off-ramp. Capacity improvements to the northbound Woodside Road off-ramp is included as a part of the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

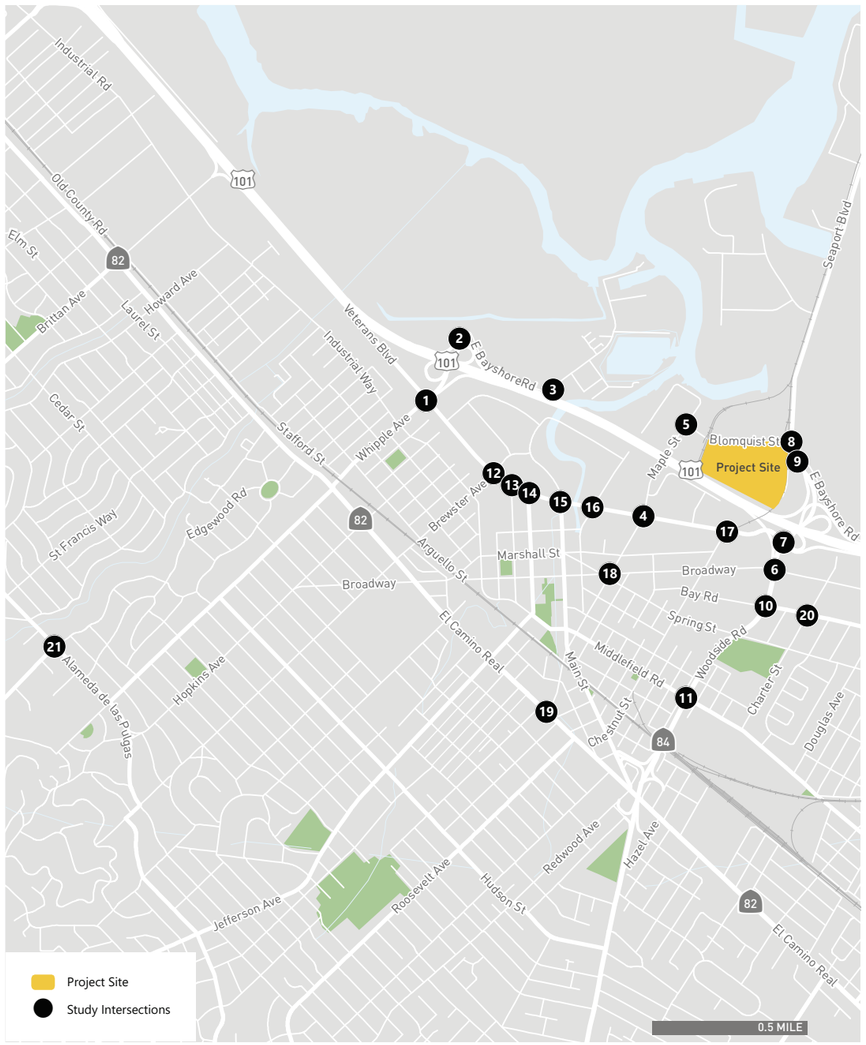
Mitigation Measure TRANS-15: The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the northbound Woodside Road off-ramp and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

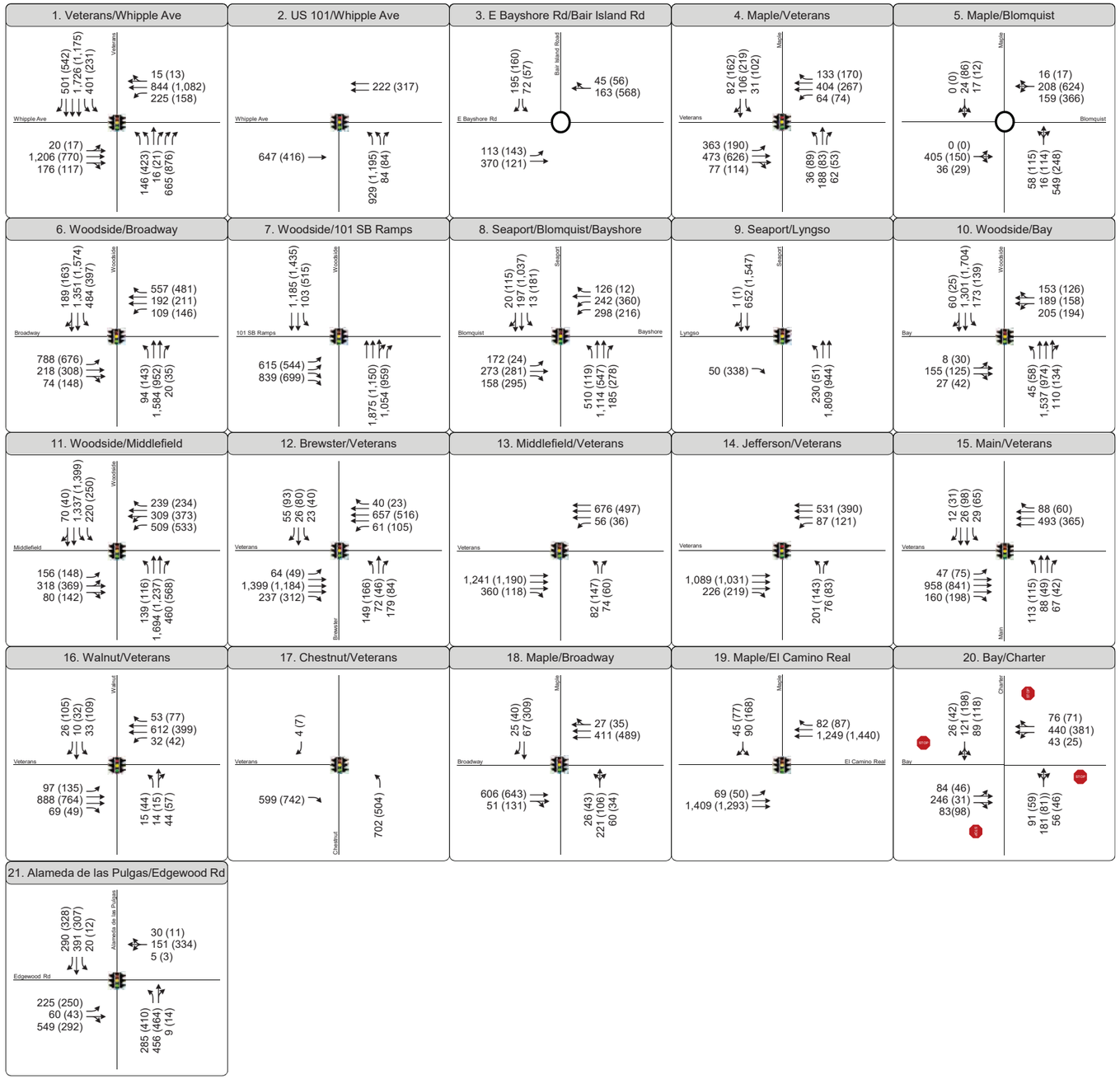
Implementation of Mitigation Measure TRANS-15 would increase capacity to the northbound US 101 off-ramp to Woodside Road and reduce the impact to a less than significant level. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Existing Plus Project with US 101/SR 84 (Woodside Road) Interchange Improvement Project Under Construction

A scenario was studied that included Existing plus Project traffic, with the Blomquist Street extension, and construction activities associated with the US 101/SR 84 Interchange Improvement Project. This scenario assumed a constrained "worst case" scenario, given that during construction there would be lane closures in both the northbound and southbound direction on Woodside Road. For this analysis roadway geometry assumptions were made using the Stage 2 Phase 2 construction plan provided by the 65 percent Transportation Management Plan. This stage includes closure of the westbound approach on Veterans Boulevard as well as removal of the existing US 101 Southbound off-ramp located at Woodside Road / Broadway. Roadway geometry and turning movement volumes can be found in **Figure 4.14-8**.





LEGEND

AM (PM) Peak Hour Traffic Volume

Lane Configuration

Stop Sign

Signalized

SOURCE: Fehr & Peers

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Figure 4.14-8

Peak Hour Traffic Volumes and Lane Configurations – Existing Plus Project with 101/84 Under Construction

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Intersection operations for the Existing Plus Project with the US 101/SR 84 Project Under Construction scenario are provided for informational purposes and presented in **Table 4.14-14**. Given that this scenario is temporary, significant impacts were not evaluated. The overall Woodside Road corridor delay and intersection LOS would worsen significantly with the addition of Project-generated traffic in combination with the constrained US 101/SR 84 Under Construction geometry.

Operations would deteriorate to unacceptable conditions at the following intersections:

1. Veterans Boulevard / Whipple Avenue
4. Maple Street / Veterans Boulevard
7. Woodside Road / US 101 Southbound Ramps
8. Blomquist Street / Seaport Boulevard / East Bayshore Road
9. Seaport Boulevard / Lyngso Lane
10. Woodside Road / Bay Road
11. Woodside Road / Middlefield Road
21. Edgewood Road / Alameda de las Pulgas

Other Transportation Issues

This section includes a discussion of the potential impacts of the Project related to site access and circulation (Criterion d); pedestrian, bike, and transit facilities (Criterion f); emergency access (Criterion e); air traffic (Criterion c); and construction. Transportation demand management and parking are also addressed.

Site Access and Circulation

Impact TRANS-16: The Project would not result in hazards regarding site access and circulation (Criterion d). (Less than Significant)

Figure 4.14-9 shows the proposed site plan with recommendations to improve circulation. Primary vehicle ingress and egress to and from the Project site would be provided by two driveways along Blomquist Street, one driveway from Seaport Boulevard via Lyngso Lane. Left-turn lanes on Blomquist Street as proposed in the Project site plan would facilitate left-turning vehicles into and out of the driveways.

Parking for the Project is provided in two parking garages and surface parking spaces spread throughout the site. The proposed configuration spreads parking throughout the site and provides for an even distribution of traffic to all three entry points into the site.

The Project site includes a system of 24-foot wide drive aisles that allows for access to any garage from any of the driveways; however, most vehicles will likely use the driveway nearest to their parking location. The central pedestrian plaza that connects the four office and one amenity building allows employees to park once and walk between buildings, minimizing circulation of vehicles throughout the campus.

TABLE 4.14-14
EXISTING PLUS HARBOR VIEW PLACE PROJECT WITH US 101 / SR 84 PROJECT UNDER CONSTRUCTION LOS RESULTS

Intersection	Control	Peak Hour	Existing		Existing Plus Project with 101/84 Under Construction	
			Delay[a]	LOS	Delay[a]	LOS
1. Veterans Boulevard / Whipple Avenue	Signal	AM	39	D	**>80**	**F**
		PM	35	C	50	D
2. Whipple Avenue / US 101 Northbound Off-Ramp	Signal	AM	14	B	14	B
		PM	19	B	17	B
3. Bair Island Road/East Bayshore Road	Roundabout	AM	<10	A	<10	A
		PM	<10	A	11	B
4. Maple Street/Veterans Boulevard	Signal	AM	19	B	**>80**	**F**
		PM	22	C	33	C
5. Blomquist Street / Maple Street	Roundabout[c]	AM	<10	A	<10	A
		PM	<10	A	25	C
6. Broadway / Woodside Road	Signal	AM	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**
7. Woodside Road / US 101 Southbound Ramps	Signal	AM	32	C	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**
8. Blomquist Street / Seaport Boulevard / East Bayshore Road	Signal	AM	26	C	24	C
		PM	33	C	**>80**	**F**
9. Seaport Boulevard / Lyngso Lane	SSS	AM	28	D	11	B
		PM	**>50**	**F**	**>50**	**F**
10. Woodside Road/Bay Road	Signal	AM	**>80**	**F**	**>80**	**F**
		PM	36	D	**>80**	**F**
11. Woodside Road / Middlefield Road	Signal	AM	**76**	**E**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**
12. Veterans Boulevard/Brewster Avenue	Signal	AM	26	C	27	C
		PM	26	C	30	C
13. Veterans Boulevard/Middlefield Road	Signal	AM	10	B	10	B
		PM	<10	A	<10	A
14. Veterans Boulevard/Jefferson Avenue	Signal	AM	19	B	18	B
		PM	14	B	14	B
15. Veterans Boulevard/Main Street	Signal	AM	16	B	17	B
		PM	19	B	17	B
16. Veterans Boulevard/Walnut Street	Signal	AM	22	C	22	C
		PM	32	C	32	C
17. Veterans Boulevard/Chestnut Street	Signal	AM	45	D	<10	A
		PM	20	B	11	B
18. Maple Street/Broadway	Signal	AM	17	B	16	B
		PM	16	B	16	B
19. Maple Street/El Camino Real	Signal	AM	<10	A	10	B
		PM	13	B	14	B
20. Bay Road/Charter Street	AWSC	AM	32	D	32	D
		PM	24	C	25	C
21. Edgewood Road/Alameda de las Pulgas	Signal	AM	50	D	**57**	**E**
		PM	**57**	**E**	**59**	**E**

NOTES: **Bold** = unacceptable LOS.

[a] For signalized intersections and roundabouts, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.
[c] SSS = Side-street stop. This intersection would be converted to a roundabout with the Blomquist Street extension in place.

SOURCE: Fehr & Peers, 2018.

SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-9
Proposed Site Plan

It appears that the driveways are designed with one inbound lane and one outbound lane. A minimum of two outbound lanes would be needed at each driveway to accommodate exiting vehicles and reduce on-site queuing. Circulation aisles intersect with the driveways close to Blomquist Street which could cause conflicts with inbound and outbound vehicles. The on-site circulation system, driveway lane geometries, and traffic control devices should continue to be reviewed and refined to ensure adequate site access and on-site circulation. In addition, the curb radii shall be designed to ensure adequate access for trucks, shuttles, and emergency vehicles.

Commercial vehicle and emergency vehicles access would be provided through the driveway off of Seaport Boulevard via Lyngso Lane or the driveways on Blomquist Street. Commercial/service loading docks are provided adjacent to each of the four office buildings. Truck access to the loading docks at Buildings 1 and 2 would be provided via the driveway off Blomquist Street. Truck access to the loading docks at Building 3 would be provided via the driveway off Lyngso Lane. Trucks access to the loading docks at Building 4 would be provided via the northeast driveway off Blomquist Street. The driveways and drive aisles connecting to the loading docks are designed to provide truck access to each loading area. Truck access to these locations would be infrequent and would therefore minimize conflicts with pedestrians, bicycles, and passenger vehicles. The Project's impact to site access and circulation would be less than significant.

Mitigation: None Required

Air Traffic Patterns

Impact TRANS-17: The Project would not result in substantial safety risks associated with a change in air traffic patterns (Criterion c). (Less than Significant)

The Project site is about 2.5 miles from the San Carlos Airport, about 10 miles from San Jose International Airport, about 11 miles from San Francisco International Airport, and about 16 miles from Oakland International Airport. Additional trips associated with the Project would not contribute substantially to demand for commercial flights. Therefore, the Project would not substantially increase flight operations. In addition, no buildings or features would be constructed on-site that would interfere with flight operations at local airports. The Project's effect on air traffic patterns would be less than significant under Existing Plus Project and Cumulative Plus Project conditions.

Mitigation: None Required

Transit

Impact TRANS-18: The Project would not conflict with adopted transit policies, plans, or programs or decrease the performance or safety of transit facilities (Criterion f). (Less than Significant)

The Project will increase demand for transit service in the area surrounding the Project site. The Project will provide dedicated shuttle service to and from downtown Redwood City and the Caltrain station as described in the preliminary TDM plan, *Preliminary Summary of TDM Strategies for Harbor View Development Redwood City, California* (Kimley-Horn and Associates, Inc., February 2018), provided in **Appendix F.5**. This shuttle service will primarily operate during the peak periods although it could be expanded based on demand. The Project proposes to coordinate the shuttle service with adjacent developments, which could include the existing shuttles operated by Caltrain and Peninsula Traffic Congestion Relief Alliance. In addition to the shuttle service connecting to Caltrain, the Project will provide corporate commute buses to locations throughout the San Francisco Bay Area based on demand. Shuttles would either pick-up and drop-off passenger at existing transit stops, or at a stop within the Project site at one of the designated passenger loading locations. Providing shuttle stops onsite would further reduce walking distances and encourage transit use.

Pedestrian access from transit to the Project site is provided by multi-use paths surrounding the site. Construction of the roundabout at Blomquist and Maple Streets would result in the existing outbound/southbound transit stop being relocated from Maple Street onto Blomquist Street. Pedestrians boarding and alighting at the SamTrans Route 270 bus stop and Caltrain shuttle stop on Blomquist Street and Maple Street can access the site from the southside sidewalk on Blomquist Street to the multi-use path that will serve as the northwestern entrance to the site, located 0.1-miles from the bus stop.

Demand for public transit generated by the Project was estimated based the existing transit mode split for workers in Redwood City and San Mateo County and the MXD+ trip generation forecasts. **Table 4.14-15** shows the forecasted transit ridership for the Project based on the existing and potential future transit access at the site. As shown in the table, the Project would generate a small amount of transit demand due to people using SamTrans Route 270, the Project provided shuttle, or walking or biking the last mile to and from the Caltrain station.

TABLE 4.14-15
ESTIMATED PUBLIC TRANSIT RIDERSHIP GENERATED BY THE PROJECT

	Daily	AM Peak Hour	PM Peak Hour
Project	241	82	72

NOTE: These estimates do not include ridership that could be provided by private operators, such as commuter shuttles for office complexes.

SOURCE: Fehr & Peers, 2018.

The Project would not create new potential conflicts between various modes and would not conflict with existing plans for transit service in the area. Therefore, impacts to transit service would be less than significant.

Mitigation: None Required

Pedestrian and Bicycle Facilities

Impact TRANS-19: The Project would not conflict with adopted bicycle or pedestrian policies, plans, or programs, or decrease the performance or safety of those facilities (Criterion f). (Less than Significant)

The Project would result in increased pedestrian and bicycle activity due to employees and visitors in and around the Project site. As shown in Figure 4.14-9, pedestrian and bicycle access would be provided through a series of multi-use pathways through the center of the Project site, around the perimeter of the Project site, and along Blomquist Street. The central plaza includes a landscaped promenade that intersects several multi-use pathways which follow pedestrian desire lines connecting offices, on-site amenities, passenger loading areas, and parking facilities. This system of pathways along with features such as shade trees, pedestrian plazas, benches and seating areas, and amenities such as play courts and a fitness area encourage a pedestrian-friendly campus atmosphere and minimizes pedestrian crossings of vehicle traffic.

The City is currently considering a pedestrian/bicycle undercrossing which connects Chestnut Street to the Project site along the existing railroad tracks. The Chestnut undercrossing is not currently fully funded and is not considered part of the Project. However, the Project does provide pedestrian/bicycle connections from the site to the proposed future Chestnut Street undercrossing.

In addition to the proposed on-site pedestrian and bicycle facilities, the Project proposes a multi-use pathway along the perimeter of the site. When pedestrian desire lines are located across mid-block locations, such as to transit stops or pathways, adequate pedestrian crossing treatments would be provided. The Project would be responsible for providing sidewalk connections from the Project site to any existing sidewalks or sidewalks proposed as part of adjacent projects. To ensure pedestrians are not encouraged to cross roads in undesignated areas, the following connections should be provided as a part of the Project:

- Provide enhanced marked crossings and pathways for pedestrian and bicycle access to existing Class I multi-use pathways. These proposed improvements include the existing Bay Trail segment to the east of Seaport Boulevard and the proposed Class I multi-use pathway under US 101 connecting to Chestnut Street.
- Extend the proposed multi-use pathway along Blomquist Street across the railroad tracks to Maple Street
- Provide safety measures for pedestrians crossing the active railroads to the east and west of the Project site.

External bicycle access to the Project site will be provided via the Maple Street bridge over US 101 and the existing Class II bike lanes on Blomquist Street. There are currently no bicycle facilities on Maple Street between Veterans Boulevard and Blomquist Street. If built, the proposed multi-use pathway under US 101 from Chestnut Street connection will provide an off-street multi-use pathway to Downtown Redwood City, allowing bicyclists to bypass Maple Street, Seaport Boulevard, and the SR-84 / US 101 interchange. To ensure bicyclists have a safe connection to the site, the following connection should be provided as a part of the Project:

- Provide dedicated space along Maple Street between Veterans Boulevard and Blomquist Street for people riding bicycles. This could include the use of flexible delineators or similar devices to separate people riding bicycles from motor vehicles.

Access to downtown from Maple Street or the future Chestnut Street undercrossing are provided through several Class II and Class III facilities in Redwood City, although some are not fully implemented. Class II bike lanes are provided on Veterans Boulevard from Convention Way to Chestnut Street. Although Chestnut Street does not currently accommodate bicyclists, it is designated as a Proposed Class II (Enhanced) facility in *RWCmoves* and connects to Spring Street which is similarly designated. Spring Street connects to existing Class II Bike Lanes on Marshall Street. Additional Proposed Class IV cycle tracks in Redwood City that could be used as access to the Project site, but are somewhat farther away from the site include Middlefield Road, El Camino Real, Brewster Avenue, Industrial Way and Main Street.

To improve safety and mobility for all users, the following best practices are recommended for the final site plan to enable a walkable and bikeable Project site, improve access to off-site destinations, and ensure pedestrians are not encouraged to cross roads in undesignated areas. Implementation of these best practices would not be required to reduce the environmental effects of the Project and the following discussion is provided for informational purposes only.

- Provide pedestrian and bicycle wayfinding to key destinations.
- Provide raised pedestrian crossings or other traffic calming treatments to slow traffic at crossing locations along pedestrian and bicycle pathways.
- Provide marked crosswalks on all legs at controlled intersections within and adjacent to the Project site.
- Provide high-visibility marked crosswalks at uncontrolled intersections and midblock locations with high pedestrian demand.
- Locate visitor parking adjacent to campus building entrances to ensure easy access.
- Provide pedestrian paths through parking lots that reduce pedestrian exposure and offer direct links.
- Provide short-term and long-term bicycle parking at all buildings.
- As part of the TDM Plan, the Project should work with bike share or electric mobility providers (e.g., e-bikes, electric stand up scooters, or other similar technologies) to consider bike share stations or other mobility services near the Project to provide additional options for short trips adjacent to the Project site. Harbor View would be responsible for funding these measures on the Project site.

The Project is designed to be consistent with the policies, plans, and programs presented in the General Plan and Bicycle Plan and would not preclude the development of bicycle and pedestrian facilities described in these plans. The final Project's designs will be reviewed to ensure consistency with applicable design standards. These standards include designing driveway entrances to ensure they provide adequate sight distance or warning systems, providing adequate pedestrian crossings to accommodate pedestrian desire lines, and designing site access to ensure vehicle queues do not frequently block pedestrian and bicycle facilities. Considering the on-site improvements, implementation of the Project would improve existing pedestrian and bicycle facilities, minimize on-site potential conflicts between various modes, and provide safe and efficient pedestrian, bicycle, and vehicle connections within the Project site and to the surrounding circulation systems. Therefore, impacts to bicycle and pedestrian conditions would be less than significant.

Mitigation: None Required

Emergency Access

Impact TRANS-20: The Project would not result in inadequate emergency access (Criterion e). (Less than Significant)

Emergency vehicle access to the Project site would primarily be provided via Seaport Boulevard through the driveways on Lyngso Lane or the middle driveway on Blomquist Street. The drive aisles through the Project site will be designed to accommodate fire truck turning radii to allow emergency responders direct access to the site and the building frontages. The Project is within one mile from the nearest fire station, located at 755 Marshall Street in Downtown Redwood City. Under current traffic conditions, it takes approximately four minutes to access Project site from this fire station which is less than the City's standard for emergency response time (five minutes or less for 85 percent of all calls).

The implementation of the Project would result in increased traffic congestion and delay at study intersections under Existing Plus Project and Cumulative Plus Project conditions. This additional traffic congestion could potentially slow emergency response and evacuation. As shown in **Table 4.14-16**, an evaluation of traffic conditions with the Project in place indicates that traffic congestion along eastbound Maple Street is expected to slightly increase emergency travel times under Existing Plus Project conditions, but not beyond the City's threshold. Therefore, the Project's effect on emergency vehicle access would be less than significant.

Mitigation: None Required

TABLE 4.14-16
PROJECT – PM PEAK HOUR ESTIMATED EMERGENCY RESPONSE TIMES

Study Intersection	Reported Vehicle Delay on Northbound Maple Street	
	Existing	Existing Plus Project
Maple Street / Veterans Blvd	0:22	0:26
Maple Street / Blomquist Street	0:10	0:10
Increased Travel Time	--	*+0:04*
Estimated Travel Time[a]	**4:00**	**4:04**

[a] Estimated travel time based on a review of Google maps during peak hours of congestion during the day. These estimates do not account for the fact fire department vehicles could bypass vehicle queues and red lights. Actual travel times may vary.

SOURCE: Fehr & Peers, 2018.

Construction

Construction activities associated with development of the Project would generally occur Monday through Friday, between 7:00 a.m. and 5:30 p.m. Construction staging would generally occur on-site. Access to the construction staging areas would be provided from US 101 via Seaport Boulevard and Blomquist Street. Construction truck traffic would be limited to the designated truck routes in Redwood City which include Seaport Boulevard and Blomquist Street. Over the course of the construction phase, construction trucks and workers arriving or departing the site would generate additional vehicle trips on the roadway network. However, due to the timing of typical construction activities, these vehicle trips are generally expected to occur outside of the AM and PM peak periods.

Impact TRANS-21: Construction associated with development of the Project would increase traffic volumes at area intersections and on area freeways, potentially causing temporary increased congestion and/or disruption of vehicle, pedestrian, bicycle and transit circulation (Criterion a and b). (Potentially Significant)

Project construction would affect off-site circulation due to increased truck traffic to and from the site. The impact of construction truck traffic would be a temporary lessening of the capacities of local streets due to the size, slower acceleration, and larger turning radii of trucks, which may temporarily affect traffic and transit operations and increase traffic, pedestrian, and bicycle conflicts near the Project site. Construction activities would not affect air traffic patterns. Construction activities are temporary by nature, and Project-related construction activities are not expected to cause a substantial disruption to existing roadway capacity. Additional impacts may result during Project construction when there are heavy-duty construction vehicles sharing the roadway with normal vehicle traffic. This can create impacts due to incompatible uses and hazards. However, due to the number of trucks currently accessing the nearby land uses, construction traffic would not change the type of vehicles using the surrounding roadway network. Impacts on transportation and traffic would be temporary in nature and would be less than those after the full build out of the Project; however, mitigation is required to reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-21: The Project applicant shall develop and submit to the City for approval a construction management plan that specifies measures that would reduce impacts of construction-related traffic to motor vehicle, bicycle, pedestrian, and transit circulation. The City must approve the plans prior to issuance of a building permit. Construction management plans shall include the following:

- Location of construction staging areas for materials, equipment, and vehicles;
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur;
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular, bicycle, and pedestrian traffic, circulation, and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the Project applicant;
- Provisions for removal of trash generated by Project construction activity;
- A process for responding to, and tracking complaints pertaining to construction activity, including identification of an on-site complaint manager; and
- Provisions for pedestrian, bicycle, and transit circulation through the congestion zone, including maintaining pedestrian and bicycle access between the bridge over Redwood Creek and Blomquist Street sidewalks and bike lanes.

Implementation of this mitigation measure would improve temporary construction conditions and improve safety for all modes of transportation.

Significance after Mitigation: Less than Significant

Parking

Parking deficiencies alone are not considered environmental issues. Secondary effects caused by parking deficiencies such as vehicles circling the block to find parking may be considered environmental issues. However, considering that there are limited areas nearby for overflow parking, it is not considered an environmental issue. All discussion of parking in this section is presented for informational purposes only.

The Project would provide a total of 3,855 employee and visitor parking spaces in two parking structures and multiple surface lots. Approximately 20 percent of the parking would be in the surface parking lots. The surface parking lots would provide 40 public parking spaces for access to the waterfront future city park. Access to parking is provided through multiple driveways on Blomquist Street and Lyngso Lane/Old Seaport as described earlier under the *Site Access and Circulation* section. The typical parking layout satisfies standards set forth in the Urban Land Institute's (ULI) *Dimensions of Parking*, 5th Edition, including 8.5 feet wide by 18 feet long parking spaces and a 24-foot parking aisle. Handicap parking spaces are located in the surface parking lots and on the ground floor near pedestrian pathways. The required number of accessible

spaces per the Americans with Disabilities Act Accessibility Guidelines (ADAAG) is two percent of the total, which is required for each lot. This will equate to approximately 81 spaces total for the Project.

In accordance with the Redwood City General Plan, parking demand analysis is required for large developments to account for shared parking, TDM plans, and parking pricing to determine appropriate parking supply. The proposed parking for the Project must be approved by the City of Redwood City prior to City approval of any development agreement for the Project. For purposes of determining required number of parking spaces per associated use, the Project is considered within Mixed-Use Zoning Districts and associated parking ratios shall apply. The Redwood City Municipal Code defines off-street parking requirements in Article 30. The Project would be required to meet these parking requirements and policies from the General Plan outlined below.

The minimum parking requirement in Redwood City for commercial uses is one parking space per 300 square feet of office space. As shown in **Table 4.14-17**, the Project is required to provide a total of 3,816 parking spaces for the office building and 40 spaces for public parking – for a total of 3,856 parking spaces. The Project proposes to supply 3,855 parking spaces, which is a deficit of one space. Moreover, additional requirements include that 10 percent of parking spaces must be designated as carpool or vanpool spaces. These spaces must be clearly marked with signs and pavement markings distinguishing these spaces as carpool or vanpool. Carpool and vanpool spaces must be located as close as possible to the building entrance, without interfering with accessible parking spaces. The Project must designate 386 carpool or vanpool spaces, per this requirement. Furthermore, 1 bicycle parking space must be provided for every 5,000 square feet of floor area – for a minimum of 229 bicycle parking spaces. Two carpool spaces may be eliminated for every off-street bicycle parking area that allows for the storage of 5 bicycles. However, no more than 20 percent of designated carpool spaces can be eliminated.

TABLE 4.14-17
PROPOSED PARKING STALLS AND CITY REQUIREMENTS

Source	Proposed amount (ksf)	Proposed Spaces	Parking Ratio, Office	Spaces Required, Office	Parking Surplus
Redwood City Code	1,144.75	3,855	1 space / 300 sf	3,816	39
Institute of Transportation Engineers [a]			2.84 spaces / 1,000 sf	3,414[a]	441

NOTE: sf = square feet

[a] ITE rate based on Suburban office building average peak parking demand. Spaces required includes an increase of 5% above expected demand to account for inefficiencies in finding parking.

SOURCE: *Parking Generation*, Fourth Edition, Washing, D.C.: ITE- Institute of Transportation Engineers, 2010; Fehr & Peers, 2018

Table 4.14-17 also provides the proposed parking demand detailed by ITE using rates from *Parking Generation*, 4th Edition. ITE reports an average peak period parking demand rate of 2.84 parking spaces per thousand square feet. Using the ITE rate, the Project would generate demand for 3,251 parking spaces. Adding five percent to account for circulating vehicles and inefficiencies in finding parking, the needed parking supply would be 3,414 spaces. The Project therefore would provide a surplus of 441 spaces, excluding any parking spaces required for public parking.

As shown in **Table 4.14-17**, there is a wide range of parking rates that could be applied to the Project site. As the prevalence of Transportation Network Companies (e.g. Uber, Lyft) and autonomous vehicles continue to increase, the demand for parking will continue to change over time. Assuming approximately 3,400 employees at the Project site, by providing 3,816 parking spaces the Project would be provided more than one parking space per employee. However, if technology companies were to lease the office space, they would likely increase the employee density and possibly require more parking than traditional office space tenants. Additionally, providing large amounts of parking can incentivize driving to the site, while the Project is also implementing a suite of Transportation Demand Management (TDM) strategies to try to incentivize non-driving modes. Below is a list of General Plan policies that would govern the design of parking for the Project:

- ***Policy BE-31.7:*** Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that discourages non-automobile travel modes usage.
- ***Policy BE-31.8:*** Support using parking supply and pricing as a strategy to encourage use of non-automobile modes where feasible.
- ***Policy BE-31.9:*** Consider reducing parking requirements for mixed-use developments and for developments providing shared parking or a comprehensive TDM program, or developments located near major transit hubs.
- ***Policy BE-31.10:*** Encourage private property owners to share their underutilized parking with the general public and/or other adjacent private developments.
- ***Policy BE-31.11:*** Explore "Parking Benefit Districts" that use revenues from parking in the district to benefit the district.

4.14.8 Cumulative Conditions

This section evaluates the transportation-related impacts of the Project under Cumulative Conditions. Cumulative Conditions represent projected conditions in 2040, comprising traffic estimates for probable future developments and selected roadway system improvements. The Blomquist Street Extension to East Bayshore Road is included under all Cumulative conditions. Forecasts from the Santa Clara Valley Transportation Authority and the San Mateo City/County Association of Governments travel demand model (VTA-C/CAG model) were used for this study.

Forecasting Model Validation

Cumulative (2040) forecasts were developed in coordination with the US 101/SR 84 (Woodside Road) Interchange Improvement Project. The VTA-C/CAG model has a base year of 2013, and land use inputs were developed by interpolating between MTC's year 2010 travel demand model and Association of Bay Area Government's (ABAG's) current year projections. Model validation thresholds from the (current) 2010 California Regional Transportation Plan Guidelines (RTP Guidelines) were used to indicate how well the model results match the existing demand volumes. Adjustments were made to the model, including splitting large TAZs into smaller TAZs, redistributing land uses (households and jobs) to reflect actual traffic loading on to the highway

network, and adjusting link capacities to better reflect observed conditions to maintain acceptable validation levels. These validation efforts performed by VTA staff are described in the Draft Travel Demand Forecasting Memorandum for the US 101/SR 84 (Woodside Road) Interchange Improvement Project (Fehr & Peers, 2014) provided in **Appendix F.4**.

Cumulative Land Use Assumptions

The cumulative land use assumptions include ABAG projections for year 2040 with refinements to reflect under construction, approved, and pending development projects in Redwood City. The 2040 land use assumptions include the County Jail, development projected in the Downtown Redwood City Precise Plan, the downtown Medical Center (Kaiser Hospital) Precise Plan, 851 Main, and the Stanford in Redwood City development. Since the 2040 forecasts were developed, the County Jail and several development projects in Downtown Redwood City have been completed. Therefore, the cumulative traffic forecasts represent a conservative scenario.

The Redwood City General Plan describes the city's framework for growth between 2010 and 2030, which includes anticipated changes in housing, population, and employment. The General Plan envisioned a mix of residential, commercial office, commercial retail, and low-intensity industrial land uses within the Inner Harbor area. This includes the 1548 Maple Street project which included 131 three-story townhomes. This project was recently approved by the City Council and the Final EIR has been adopted.

The model includes substantial growth in the area northeast of East Bayshore Road and Bair Island Road. Some of this projected growth has already occurred or was under construction at the time the traffic counts were taken. Therefore, refined land use growth projections were applied and cumulative traffic forecasts for that area were adjusted to more closely match expected conditions.

Cumulative Roadway Improvements

The 2040 roadway networks contain Tier 1 improvements in the Regional Transportation Plan (RTP) for San Mateo County. The RTP includes the Blomquist Street Extension to East Bayshore Road and the conversion of the US 101/Willow Road interchange to a partial cloverleaf. Additionally, the Blomquist Street Extension to East Bayshore Road is included in Redwood City's TIF program. Both of these improvements are included in the Cumulative conditions analysis with and without the Project.

Other on-going studies to improve roadways in the study area include the US 101/SR 84 (Woodside Road) Interchange Improvement Project and the extension of the existing HOV lanes north of Whipple Avenue to the San Mateo/San Francisco county line. However, these projects are not fully funded, and therefore are not included in the Cumulative conditions analysis (with or without the Project). A separate cumulative scenario that includes the 101/84 interchange improvements is included later in this document.

Cumulative Traffic Volumes

Intersection peak-hour traffic volume forecasts were developed using the Furnessing Method, which is a link-level adjustment procedure that adds the amount of growth projected by the model

proportional to the existing turning movement volumes. For locations where existing counts are very low, or where new roadways are proposed, additional adjustments are made to account for the projected growth to those movements. Intersection peak-hour forecasts along Seaport Boulevard and Blomquist Street include the anticipated growth in truck traffic volumes based on information gathered for the US 101/SR 84 (Woodside Road) Interchange Improvement Project. Mainline forecasts were developed using the difference method, which is a link-level adjustment procedure that adds the amount of growth projected by the model to the existing demand volumes. The following presents the specific steps used to develop Cumulative No Project mainline and ramp raw forecasts from the model:

Step 1 Run the validated base year model to estimate existing AM and PM peak-hour model traffic volumes.

Step 2 Run the 2040 model to estimate AM and PM peak-hour traffic forecasts.

Step 3 Develop Cumulative No Project raw forecasts using the following formula: Year 2040 Raw Forecasts = Base Year Peak Hour Demand Volume from existing counts + (Year 2040 Model Peak Hour Volume – Base Year Model Peak Hour Volume)

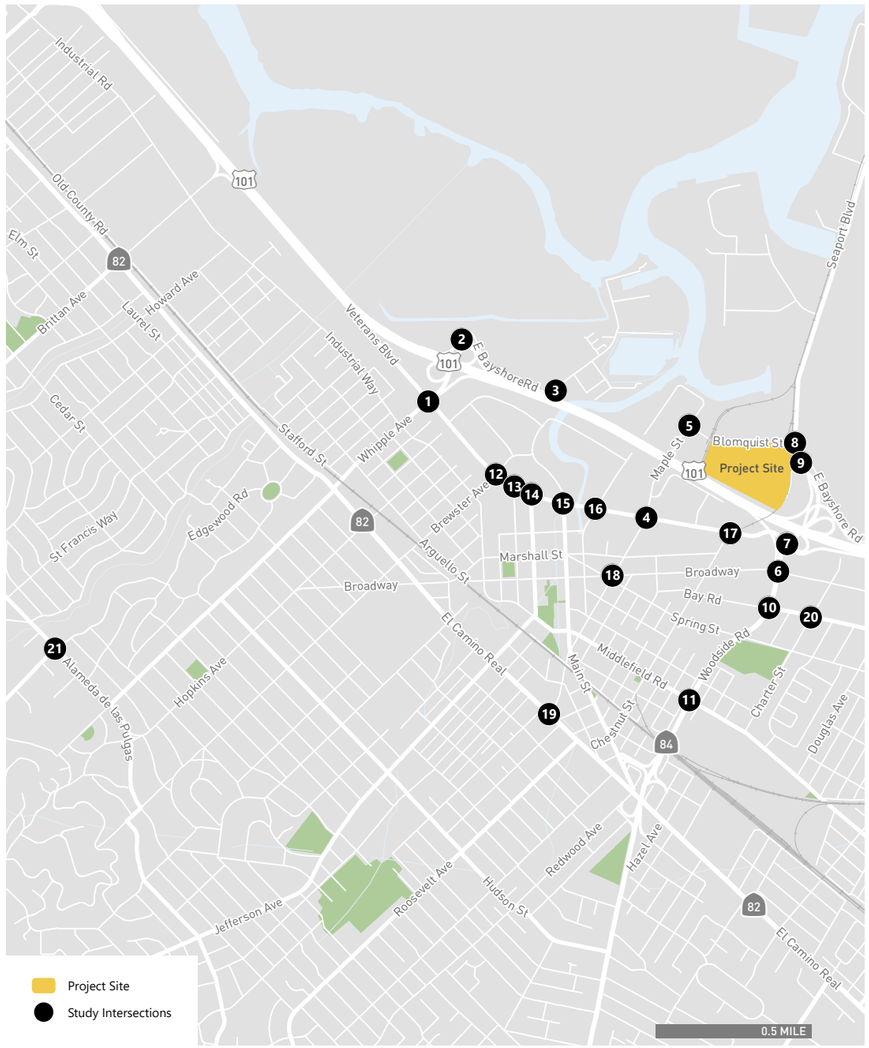
Step 4 Check for reasonableness and make adjustments to ensure that volumes do not drop below existing levels or grow exponentially unless there is a specific reason.

To estimate the Cumulative Plus Project traffic volumes, the AM and PM peak-hour vehicle trips generated by the Project were added to the Cumulative (No Project) traffic volumes described above. These vehicle trips were added to the mainline freeway segments, freeway ramps, and intersection turning movements based on the directions of approach and departure. Intersection turning movement volumes for Cumulative No Project and Plus Project conditions are shown on **Figures 4.14-10** and **4.14-11**, respectively.

Cumulative Intersection Operations

The intersection LOS analysis results for Cumulative Conditions both with and without the Project are presented in **Table 4.14-18**. Signal timing optimizations were assumed for all signalized intersections to represent routine signal maintenance. As shown in the table, the following intersections would continue to operate at an acceptable LOS D or better under Cumulative Conditions with and without the Project:

2. Whipple Avenue / US 101 Northbound Off-Ramp
12. Veterans Boulevard / Brewster Avenue
13. Veterans Boulevard / Middlefield Road
14. Veterans Boulevard / Jefferson Avenue
15. Veterans Boulevard / Main Street
16. Veterans Boulevard / Walnut Street
18. Maple Street / Broadway
19. Maple Street / El Camino Real



LEGEND

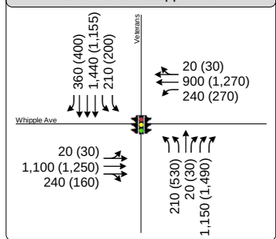
AM (PM) Peak Hour Traffic Volume

Lane Configuration

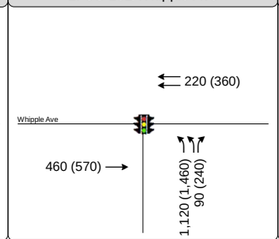
Stop Sign

Signalized

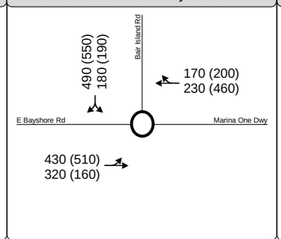
1. Veterans/Whipple Ave



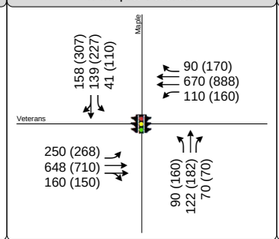
2. US 101/Whipple Ave



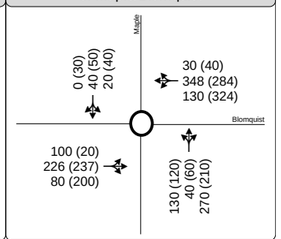
3. Bair Island Rd/E Bayshore Rd



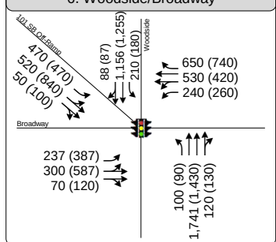
4. Maple/Veterans



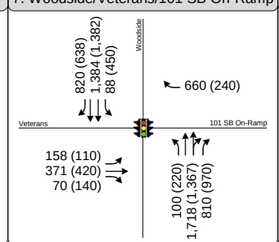
5. Maple/Blomquist



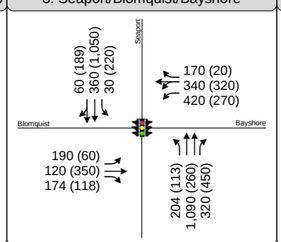
6. Woodside/Broadway



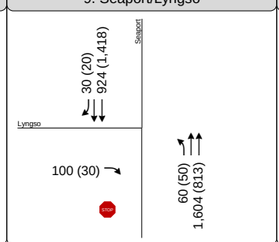
7. Woodside/Veterans/101 SB On-Ramp



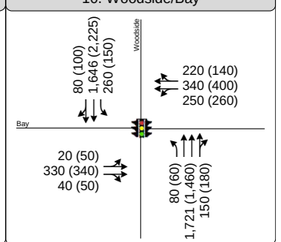
8. Seaport/Blomquist/Bayshore



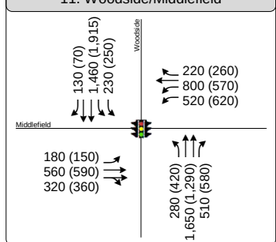
9. Seaport/Lyngso



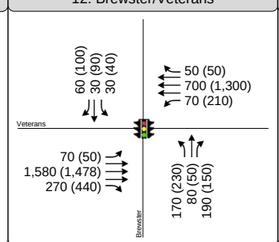
10. Woodside/Bay



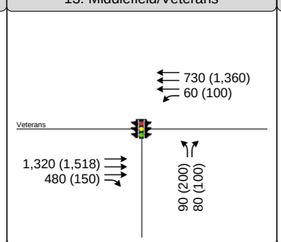
11. Woodside/Middlefield



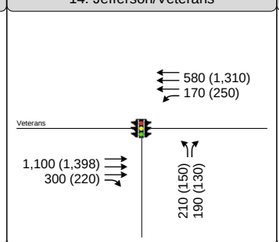
12. Brewster/Veterans



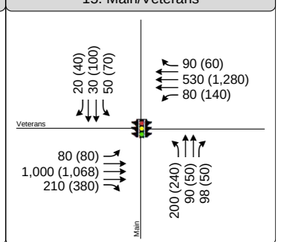
13. Middlefield/Veterans



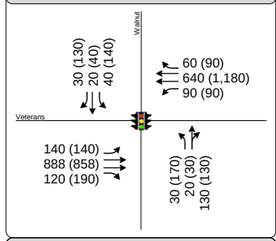
14. Jefferson/Veterans



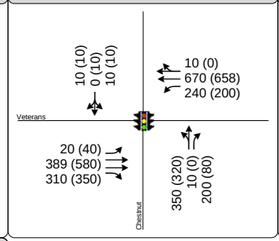
15. Main/Veterans



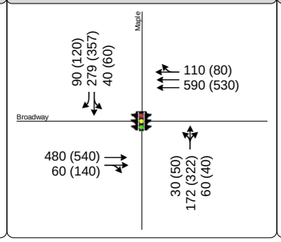
16. Walnut/Veterans



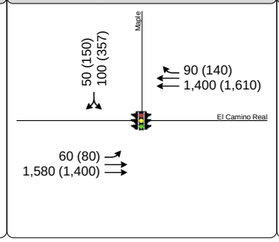
17. Chestnut/Veterans



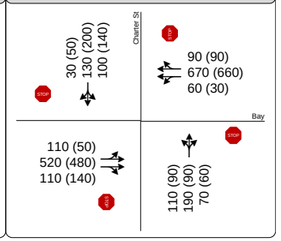
18. Maple/Broadway



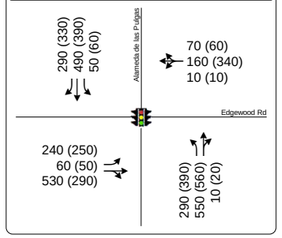
19. Maple/El Camino Real



20. Bay/Charter St



21. Edgewood Rd/Alameda de las Pulgas

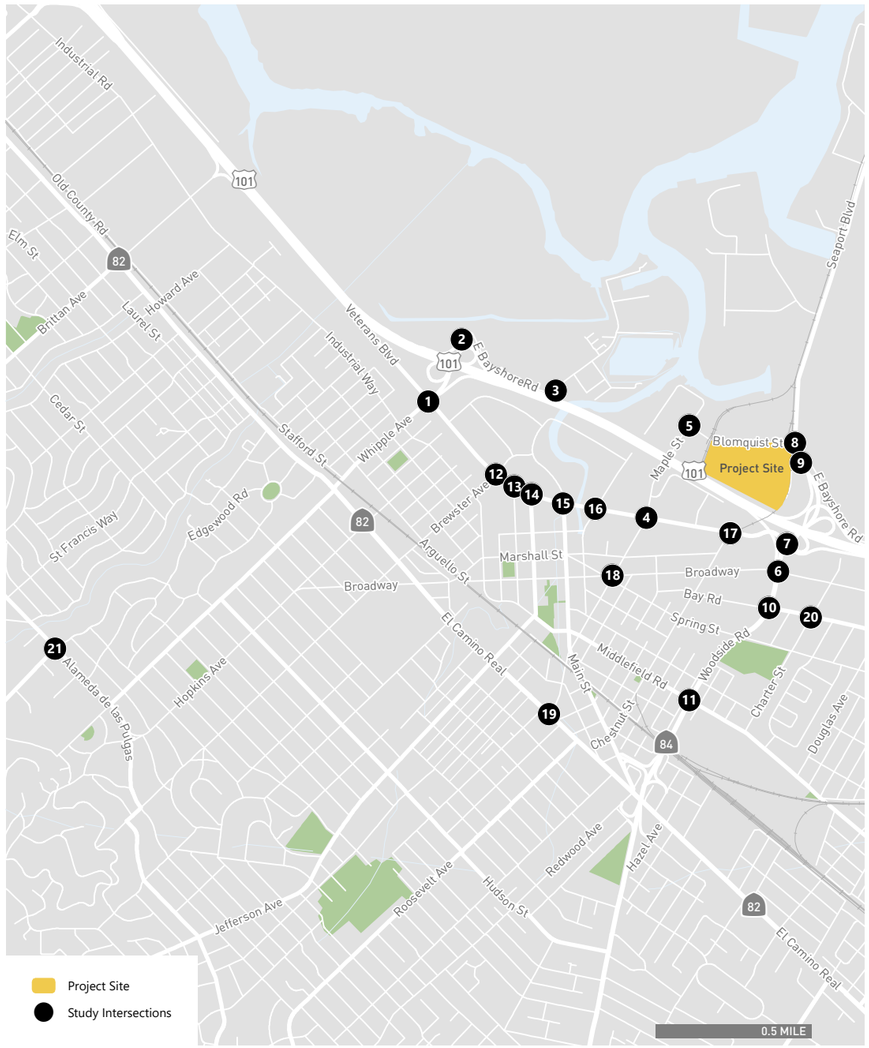


SOURCE: Fehr & Peers

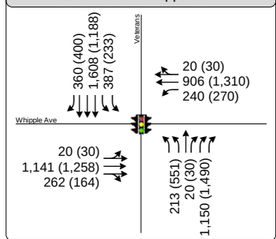
Harbor View Project . 170951

Figure 4.14-10

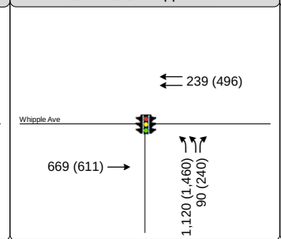
Peak Hour Traffic Volumes and Lane Configurations – Cumulative No Project Intersection Volumes



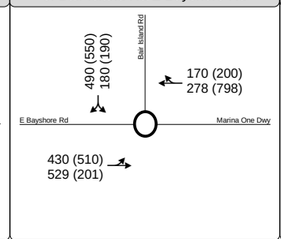
1. Veterans/Whipple Ave



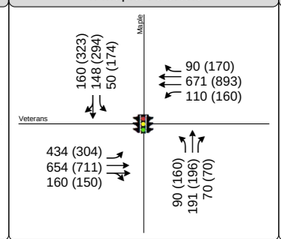
2. US 101/Whipple Ave



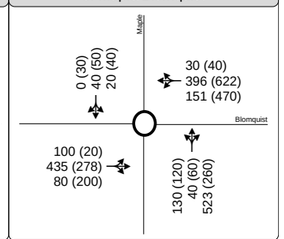
3. Bair Island Rd/E Bayshore Rd



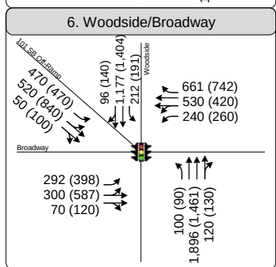
4. Maple/Veterans



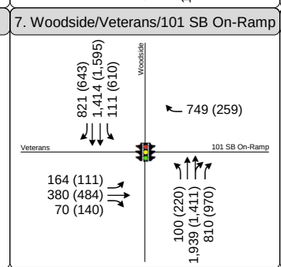
5. Maple/Blomquist



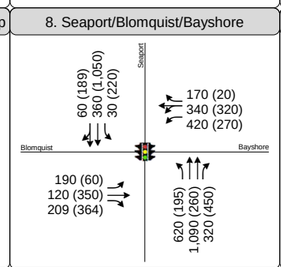
6. Woodside/Broadway



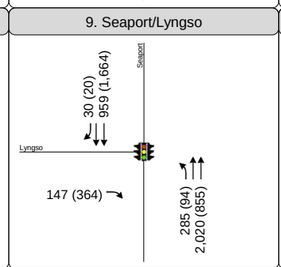
7. Woodside/Veterans/101 SB On-Ramp



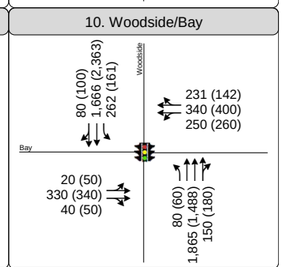
8. Seaport/Blomquist/Bayshore



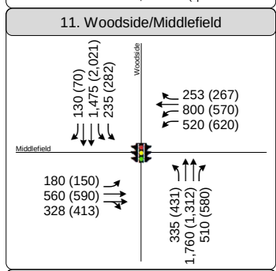
9. Seaport/Lyngso



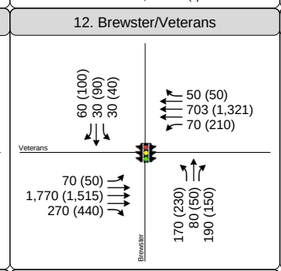
10. Woodside/Bay



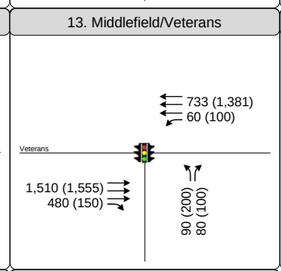
11. Woodside/Middlefield



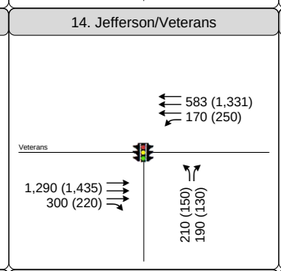
12. Brewster/Veterans



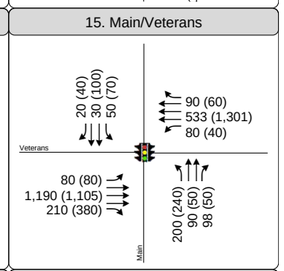
13. Middlefield/Veterans



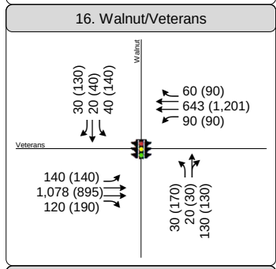
14. Jefferson/Veterans



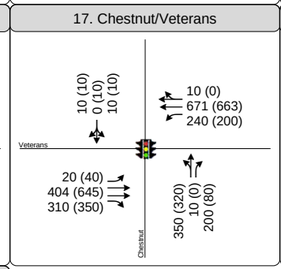
15. Main/Veterans



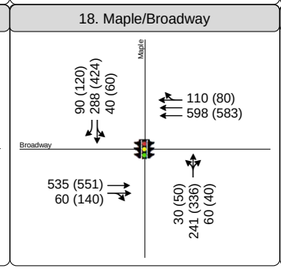
16. Walnut/Veterans



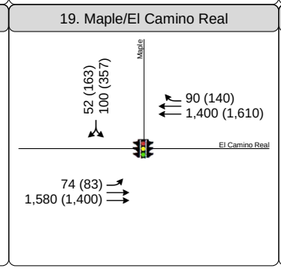
17. Chestnut/Veterans



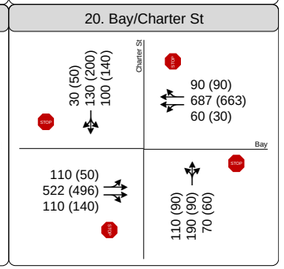
18. Maple/Broadway



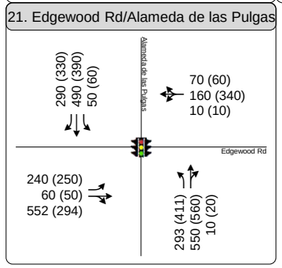
19. Maple/El Camino Real



20. Bay/Charter St



21. Edgewood Rd/Alameda de las Pulgas



LEGEND

AM (PM) Peak Hour Traffic Volume

Lane Configuration

Stop Sign

Signalized

SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-11

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Intersection Volumes

TABLE 4.14-18
CUMULATIVE INTERSECTION LOS RESULTS

Intersection	Control	Peak Hour	Existing		Cumulative No Project		Cumulative Plus Project	
			Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Veterans Boulevard / Whipple Avenue	Signal	AM	39	D	50	D	**73**	**E**
		PM	35	C	**68**	**E**	**77**	**E**
2. Whipple Avenue / US 101 Northbound Off-Ramp	Signal	AM	14	B	17	B	17	B
		PM	19	B	25	C	25	C
3. Bair Island Road/East Bayshore Road[d]	Roundabout	AM	<10	A	12	B	14	B
		PM	<10	A	**71**	**F**	**>80**	**F**
4. Maple Street / Veterans Boulevard[e]	Signal	AM	19	B	32	C	**>80**	**F**
		PM	22	C	**>80**	**F**	**75**	**E**
5. Blomquist Street / Maple Street	Roundabout[c]	AM	<10	A	< 10	A	22	C
		PM	<10	A	**>80**	**F**	**55**	**F**
6. Broadway / Woodside Road / US 101 Southbound Off-Ramp[f]	Signal	AM	**>80**	**F**	**>80**	**F**	**> 80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp[g]	Signal	AM	32	C	41	D	47	D
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
8. Blomquist Street / Seaport Boulevard / East Bayshore Road[h]	Signal	AM	26	C	**67**	**E**	**80**	**E**
		PM	33	C	**>80**	**F**	**>80**	**F**
9. Seaport Boulevard / Lyngso Lane	SSS	AM	28	D	30	D	15	B
		PM	**>50**	**F**	**>50**	**F**	**>50**	**F**
10. Woodside Road/ Bay Road	Signal	AM	**>80**	**F**	**>80**	**F**	**>80**	**F**
		PM	36	D	**>80**	**F**	**>80**	**F**
11. Woodside Road/Middlefield Road	Signal	AM	**76**	**E**	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
12. Veterans Boulevard/Brewster Avenue	Signal	AM	26	C	28	C	29	C
		PM	26	C	31	C	31	C
13. Veterans Boulevard/Middlefield Road	Signal	AM	10	B	10	A	< 10	A
		PM	<10	A	< 10	A	< 10	A
14. Veterans Boulevard/Jefferson Avenue	Signal	AM	19	B	23	C	24	C
		PM	14	B	16	B	12	B
15. Veterans Boulevard/Main Street	Signal	AM	16	B	30	C	29	C
		PM	19	B	22	C	19	B
16. Veterans Boulevard/Walnut Street	Signal	AM	22	C	26	C	27	C
		PM	32	C	52	D	42	D
17. Veterans Boulevards/Chestnut Street	Signal	AM	45	D	40	D	41	D
		PM	20	B	**72**	**E**	**>80**	**F**
18. Maple Street/Broadway	Signal	AM	17	B	16	B	17	B
		PM	16	B	20	C	22	C
19. Maple Street/El Camino Real	Signal	AM	<10	A	11	B	11	B
		PM	13	B	49	D	52	D
20. Bay Road/Charter Street	SSS	AM	32	D	**>80**	**F**	**>80**	**F**
		PM	24	C	**70**	**F**	**73**	**F**

TABLE 4.14-18 (Continued)
CUMULATIVE INTERSECTION LOS RESULTS

Intersection	Control	Peak Hour	Existing		Cumulative No Project		Cumulative Plus Project	
			Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
21. Edgewood Road/Alameda de las Pulgas	Signal	AM	50	D	**74**	**E**	**77**	**E**
		PM	**57**	**E**	**68**	**E**	**70**	**E**

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact.

[a] For signalized intersections and roundabouts, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.
[c] This intersection is planned to be converted to a roundabout.
[d] Traffic generated by the Project increases delay at this intersection from 89 seconds to 273 seconds in the PM peak hour.
[e] Traffic generated by the Project decreases delay at this intersection from 131 seconds to 117 seconds in the PM peak hour. The vehicle delay is shown to slightly decrease at some intersections that operate far over capacity (LOS F conditions) due to increased upstream congestion that can limit the amount of traffic that reaches the intersection (due to new bottlenecks) or change the traffic patterns approaching this intersection (due to platoons of cars arriving at once) during the peak hours. Simulation models with intersections that operate above capacity (LOS F) are highly variable (as described in the HCM 2000 Exhibit 16-14) and small changes in traffic flow can affect the vehicle delay.
[f] Traffic generated by the Project decreases delay at this intersection from 266 seconds to 259 seconds in the AM peak hour and decreases delay from 238 seconds to 226 seconds in the PM peak hour. See note e for clarification about intersections where delay decreases.
[g] Traffic generated by the Project increases delay at this intersection from 82 seconds to 99 seconds in the PM peak hour.
[h] Traffic generated by the Project increases delay at this intersection from 99 seconds to 143 seconds in the AM peak hour and from 111 seconds to 121 seconds in the PM peak hour.

SOURCE: Fehr & Peers, 2018.

The remaining intersections would operate at LOS E or worse during the AM or PM peak hours. The implementation of the Project, in combination with other reasonably foreseeable development, would add traffic to intersections currently operating at unacceptable levels or cause intersection operations to degrade from acceptable levels under Existing Conditions to unacceptable levels under Cumulative Conditions. These are considered cumulative significant impacts.

Implementation of the Project would contribute traffic and worsen operations from acceptable levels to unacceptable levels, or increase delay by more than five seconds at study intersections that operate at unacceptable levels of service without the Project, at the following locations:

1. Veterans Boulevard / Whipple Avenue, AM and PM peak hours
3. Bair Island Road / East Bayshore Road, PM peak hour
4. Veterans Boulevard / Maple Street, AM peak hour
7. Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp, PM peak hour
8. Blomquist Street / Seaport Boulevard / East Bayshore Road, AM and PM peak hours
9. Seaport Boulevard / Lyngso Lane, PM peak hour
10. Woodside Road / Bay Road, AM peak hour
11. Woodside Road / Middlefield Road, AM and PM peak hour
17. Veterans Boulevard / Chestnut Street, PM peak hour

Therefore, the Project's contribution to these intersections with significant cumulative impacts is considerable and mitigation is required.

The intersections along Woodside Road are closely spaced with interconnected signals, with reoccurring vehicle queues extending between US 101 and Middlefield Road. Traffic demand

from the US 101 interchange exceeds the corridor capacity throughout the AM and PM peak periods, causing breakdowns in traffic flow and bottleneck locations to shift among intersections due to fluctuations in traffic volumes as platoons of vehicles move through the corridor. The City's significance criteria are appropriate for individual isolated intersections, and may not identity impacts on congested corridors. Therefore, the following impact statement addresses intersections on Woodside Road between US 101 and Middlefield Road because changes at one location will have downstream or upstream affects that could underrepresent impacts at those locations (e.g., a bottleneck worsens at one location, thus limiting the number of vehicles at a downstream intersection and seemingly improving its operations).

Some intersections experience a decrease in intersection delay under Cumulative Conditions with the addition of Project trips during either the AM or PM peak hours. The decrease is attributed to upstream bottlenecks on Woodside Road and Veterans Boulevard. The bottlenecks prohibit a percentage of vehicles from passing therefore those vehicles are unable to enter the study intersections. As a result, some study intersections do not receive the full vehicle demand. This leads to a decrease in intersection delay that does not signify improved intersection operations, but rather upstream queueing and bottlenecks that effectively decrease an intersection's served volume.

Impact TRANS-22: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at the intersections of #7 Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp, #8 Blomquist Street / Seaport Boulevard / East Bayshore Road, and #17 Veterans Boulevard / Chestnut Street, all of which operate at an unacceptable LOS during the AM and/or PM peak hours without the Project. The resulting worsening bottlenecks at these locations would limit the number of vehicles at downstream intersections currently operating at unacceptable LOS.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-22:** Prior to issuance of the first building permit, the Project applicant shall contribute its fair share contribution, as determined by the City to provide additional capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project.

Implementation of Mitigation Measure TRANS-22 and construction of the US 101/SR 84 interchange improvements would improve operations along the Woodside Road corridor and would reduce the impact to less than significant levels at intersections #7 Veterans Boulevard / Woodside Road / US 101 Southbound On-Ramp, #8 Blomquist Street / Seaport Boulevard / East Bayshore Road, and #17 Veterans Boulevard / Chestnut Street. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-23: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Criteria a and b). (Significant)

Specifically, the Project would cause delay to worsen by more than five seconds at the intersections of #10 Bay Road at Woodside Road and #11 Woodside Road / Middlefield Road, both of which operate at an unacceptable LOS during the AM and/or PM peak hours without the Project.

The US 101/SR 84 (Woodside Road) Interchange Project proposes to increase traffic capacity at the interchange and improve intersection operations along the corridor. Fees paid by proposed development projects would help improve traffic conditions by funding needed transportation projects such as the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-23A:** Prior to issuance of the first building permit, the Project applicant shall contribute its fair share contribution, as determined by the City to provide additional capacity along the Woodside Road corridor and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project.

In addition to the capacity increases along Woodside Road as outlined in Mitigation Measure TRANS-23A, several additional mitigation measures would be required to improve intersection operations further along the Woodside Road corridor as set forth below.

> **Mitigation Measure TRANS-23B:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall implement geometric changes to intersection #10 Bay Road/Woodside Road to the satisfaction of the City. Changes are to convert the eastbound (Bay Road) approach to a left-turn pocket of 100 feet, one through lane, and a shared through-right lane, add a northbound (Woodside Road) through lane, and convert the westbound approach to a right-turn pocket of 250 feet, a left-turn pocket of 250 feet, and three westbound through lanes. Additionally, the overall cycle length shall be optimized while adding protected left-turn phases for both the westbound and eastbound movements.

> **Mitigation Measure TRANS-23C:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall implement geometric changes to intersection #11 Woodside Road/Middlefield Road to the satisfaction of the City. Changes are to modify the westbound (Middlefield Road) approach to two left-turn lanes with 400-foot pockets, one through lane, and one shared through-right lane with a 100-foot pocket.

Implementation of Mitigation Measures TRANS-23B and TRANS-23C would result in the intersections still operating at unacceptable levels but within the five second threshold. However, the geometric changes listed are not consistent with recently approved and future City plans at these locations. Additionally, there is insufficient right-of-way provided to implement the mitigation.

Significance after Mitigation: Significant and Unavoidable

Mitigation Measure TRANS-23D: As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, it is unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-24: The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the AM and PM peak hours for intersection #1 Veterans Boulevard / Whipple Avenue (Criteria a and b). (Significant)

Mitigation Measure TRANS-24: Prior to receiving the first certificate of occupancy for the Project, the Project sponsor shall implement improvements to signal operations at the intersection of Veterans Boulevard/Whipple Avenue to optimize overall cycle length and adjusting green split timing to the satisfaction of the City.

Significance after Mitigation: Less than Significant

Impact TRANS-25: The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the PM peak hour for intersection #3 Bair Island Road / East Bayshore Road (Criteria a and b). (Significant)

The worsening traffic operations at this location are due to the increase in outbound traffic destined for the northbound US 101 on-ramp from the Project site.

Mitigation Measure TRANS-25A: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall construct intersection geometry improvements at Bair Island Road / East Bayshore Road. The geometry improvements are widening the roundabout to two circulation lanes, and changing the westbound approach to one through lane and a 100-foot right turn pocket. In addition, the southbound approach would be widened into two lanes, one left-turn and one right-turn lane.

Physical improvements to the intersection geometry would improve operations of this intersection to LOS E during the PM peak hour (with less vehicle delay than Cumulative No Project conditions). However, significant intersection expansion conflicts with City plans and goals related to multimodal access and safety. The intersection expansion would cause secondary impacts to pedestrian and bicycle safety. Further, this mitigation measure may be infeasible due to right-of-way constraints.

Significance after Mitigation: Significant and Unavoidable

Mitigation Measure TRANS-25B: As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, it is unlikely that a TDM Plan could reduce this impact to a less-than-significant level.

Significance after Mitigation: Significant and Unavoidable

Impact TRANS-26: The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the AM peak hour for intersection #4 Veterans Boulevard / Maple Street (Criteria a and b). (Significant)

Physical improvements and changes to signal operations would improve operations of this intersection to LOS C during the AM peak hour.

Mitigation Measure TRANS-26: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall implement geometry improvements to the intersection at Veterans Boulevard / Maple Street by extending the westbound (Veterans Boulevard) left-turn pocket from 150 feet to 200 feet and the eastbound (Veterans) left-turn pocket from 150 feet to 250 feet to the satisfaction of the City. In addition, the applicant shall make signal improvements to optimize overall cycle length and adjust green split timing. Green time shall be added to the eastbound left-turn movement (phase 1), westbound left-turn movement (phase 5), and northbound and southbound through movements (phase 4), while overall cycle length shall extend from 116 second to 160 seconds. Project applicant shall also coordinate with the City to ensure that signal timing changes do not negatively affect adjacent coordinated signals along Veterans Boulevard.

Significance after Mitigation: Less than Significant

Impact TRANS-27: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane in the PM peak hour (Criteria a and b). (Significant)

This intersection with side-street stop control would not be able to accommodate the amount of Project traffic entering and exiting the site at this location. **The traffic volumes meet the criteria for the peak hour traffic signal warrant.**

Mitigation Measure TRANS-27: Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall install a new actuated traffic signal at the intersection at Seaport Boulevard / Lyngso Lane, to the satisfaction of the City. The new signal shall be designed with a cycle length of 90 seconds and coordinated phases with the adjacent signal at Seaport Boulevard/Blomquist Street. The intersection shall include a protected northbound left turn phase and prohibit eastbound left-turns.

With implementation of Mitigation Measure TRANS-27 alone, the intersection would still operate at an unacceptable level in the PM peak hour. However, with implementation of Mitigation Measure TRANS-27 in combination with Mitigation Measure TRANS-22, the intersection delay is reduced to acceptable levels. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

Significance after Mitigation: Significant and Unavoidable

Cumulative Conditions With US 101/SR 84 (Woodside Road) Interchange Improvements Project

A cumulative scenario was studied with completion of the US 101/SR 84 Interchange Improvements Project. The improvements include a redesign of the existing southbound off-ramp, a direct Veterans Boulevard ramp connection to US 101, and perpendicular ramp termini on Woodside Road. Construction of the US 101/SR 84 improvements is expected to be complete prior to 2040. The purpose of these improvements is to alleviate peak period traffic congestion at the US 101/SR 84 interchange. An intersection analysis was performed to study these conditions under a Cumulative scenario with the Project. Project trip assignment under Cumulative Conditions with US 101/SR 84 Interchange Improvements Project is detailed in **Figure 4.14-12**. Intersection turning movements for the Cumulative Plus Project with US 101/SR 84 Interchange Improvements Project scenario are provided in **Figure 4.14-13**.

The intersection LOS analysis results for the Cumulative Conditions with the Project and US 101/SR 84 Interchange Improvements are presented in **Table 4.14-19**. Along with roadway improvements, signal timing optimizations were assumed for all signalized intersections located on Woodside Road to represent routine signal maintenance and new signal installation. As shown in the table, the following intersections would improve to or continue to operate at an acceptable LOS D or better during both AM and PM peak hours under Cumulative Conditions with the Project and interchange improvements:

2. Whipple Avenue / US 101 Northbound Off-Ramp
5. Blomquist Street / Maple Street
8. Blomquist Street / Seaport Boulevard
12. Veterans Boulevard / Brewster Avenue
13. Veterans Boulevard / Middlefield Road
14. Veterans Boulevard / Jefferson Avenue
15. Veterans Boulevard / Main Street
16. Veterans Boulevard / Walnut Street
17. Veterans Boulevard / Chestnut Street
18. Maple Street / Broadway
19. Maple Street / El Camino Real

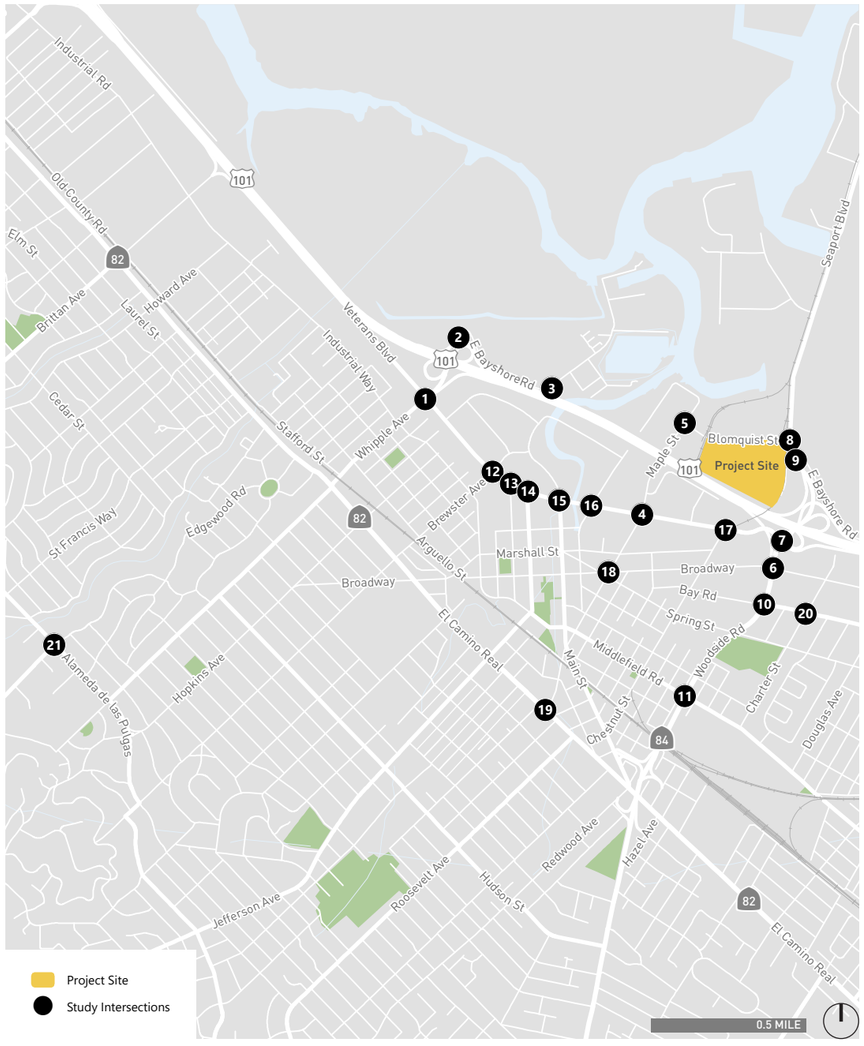
TABLE 4.14-19
CUMULATIVE WITH PROJECT AND US 101 / SR 84 INTERCHANGE IMPROVEMENTS
INTERSECTION LOS RESULTS

Intersection	Control	Peak Hour	Cumulative No Project		Cumulative Plus Project		Cumulative Plus Project with 101-84 Improvements	
			Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Veterans Boulevard / Whipple Avenue	Signal	AM	47	D	**73**	**F**	**68**	**E**
		PM	**68**	**E**	**77**	**E**	**76**	**E**
2. Whipple Avenue / US 101 Northbound Off-Ramp	Signal	AM	18	B	17	B	19	B
		PM	25	C	25	C	25	C
3. Bair Island Road/East Bayshore Road	Roundabout	AM	13	B	14	B	16	B
		PM	**39**	**E**	**>80**	**F**	**>80**	**F**
4. Maple Street / Veterans Boulevard	Signal	AM	32	D	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**75**	**E**	**>80**	**F**
5. Blomquist Street / Maple Street	Roundabout[c]	AM	< 10	A	22	C	18	C
		PM	**>80**	**F**	**55**	**F**	31	D
6. Broadway / Woodside Road	Signal	AM	**>80**	**F**	**> 80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
7. Woodside Road / US 101 Southbound On-Ramps	Signal	AM	41	D	47	D	52	D
		PM	**>80**	**F**	**>80**	**F**	**75**	**E**
8. Blomquist Street / Seaport Boulevard / East Bayshore Road	Signal	AM	**67**	**E**	**80**	**E**	50	D
		PM	**>80**	**F**	**>80**	**F**	42	D
9. Seaport Boulevard / Lyngso Lane	SSS	AM	30	D	15	B	15	B
		PM	**>50**	**F**	**>50**	**F**	**>50**	**F**
10. Woodside Road/ Bay Road	Signal	AM	**>80**	**F**	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
11. Woodside Road/Middlefield Road	Signal	AM	**>80**	**F**	**>80**	**F**	**>80**	**F**
		PM	**>80**	**F**	**>80**	**F**	**>80**	**F**
12. Veterans Boulevard/Brewster Avenue	Signal	AM	28	C	29	C	29	C
		PM	31	C	31	C	36	D
13. Veterans Boulevard/Middlefield Road	Signal	AM	10	A	< 10	A	<10	A
		PM	< 10	A	< 10	A	<10	A
14. Veterans Boulevard/Jefferson Avenue	Signal	AM	24	C	24	C	25	C
		PM	16	B	15	B	14	B
15. Veterans Boulevard/Main Street	Signal	AM	32	C	29	C	31	C
		PM	22	C	21	C	19	B
16. Veterans Boulevard/Walnut Street	Signal	AM	29	C	27	C	29	C
		PM	52	D	42	D	42	D
17. Veterans Boulevards/Chestnut Street	Signal	AM	40	D	41	D	15	B
		PM	**72**	**E**	**>80**	**F**	**18**	**B**
18. Maple Street/Broadway	Signal	AM	16	B	17	B	16	B
		PM	20	C	22	C	22	C
19. Maple Street/El Camino Real	Signal	AM	11	B	11	B	11	B
		PM	49	D	53	D	52	D
20. Bay Road/Charter Street	SSS	AM	69	F	**72**	**F**	**>80**	**F**
		PM			**>50**	**F**	**>50**	**F**
21. Edgewood Road/Alameda de las Pulgas	Signal	AM	78	E	**81**	**F**	**77**	**E**
		PM			**95**	**F**	**71**	**E**

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact.

[a] For signalized intersections and roundabouts, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.

SOURCE: Fehr & Peers, 2018.



LEGEND

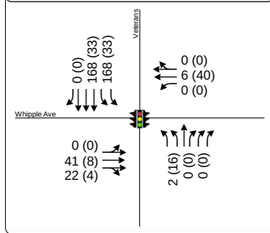
AM (PM) Peak Hour Traffic Volume

Lane Configuration

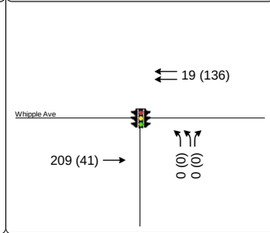
Stop Sign

Signalized

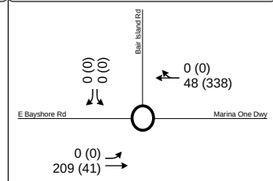
1. Veterans/Whipple Ave



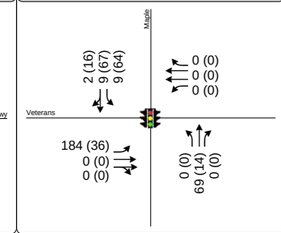
2. US 101/Whipple Ave



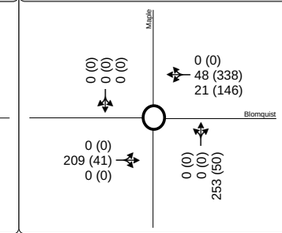
3. Bair Island Rd/E Bayshore Rd



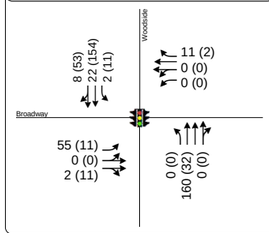
4. Maple/Veterans



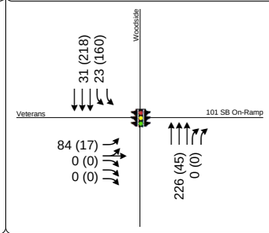
5. Maple/Blomquist



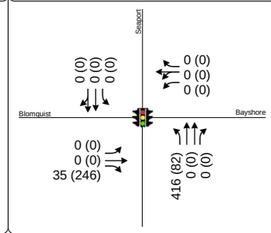
6. Woodside/Broadway



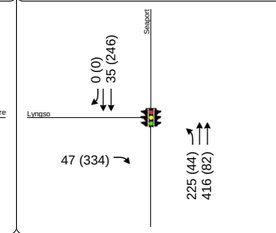
7. Woodside/101 SB Ramps



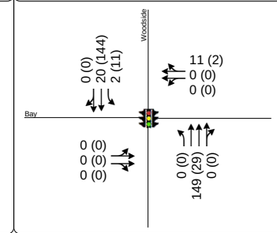
8. Seaport/Blomquist/Bayshore



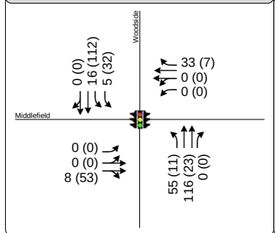
9. Seaport/Lyngso



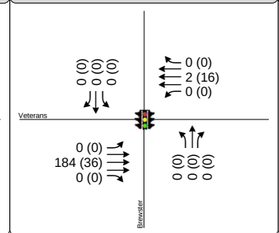
10. Woodside/Bay



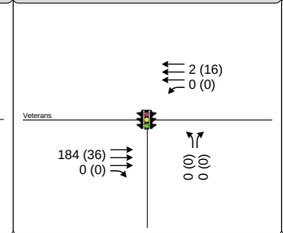
11. Woodside/Middlefield



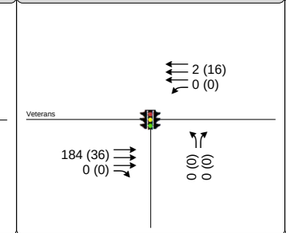
12. Brewster/Veterans



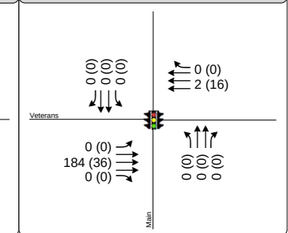
13. Middlefield/Veterans



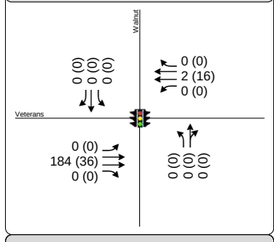
14. Jefferson/Veterans



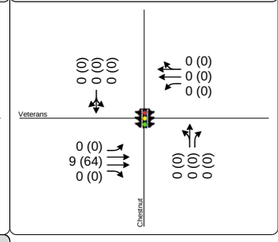
15. Main/Veterans



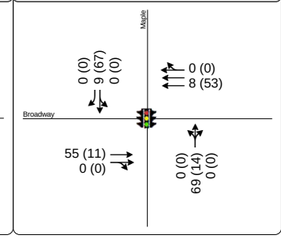
16. Walnut/Veterans



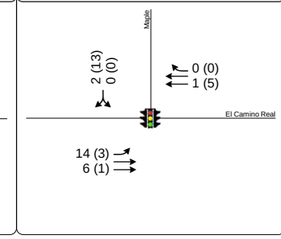
17. Chestnut/Veterans



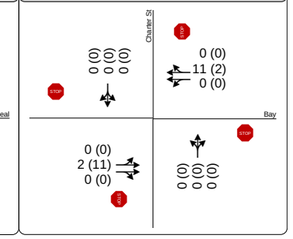
18. Maple/Broadway



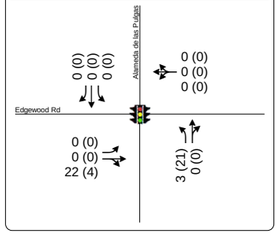
19. Maple/El Camino Real



20. Bay/Charter St



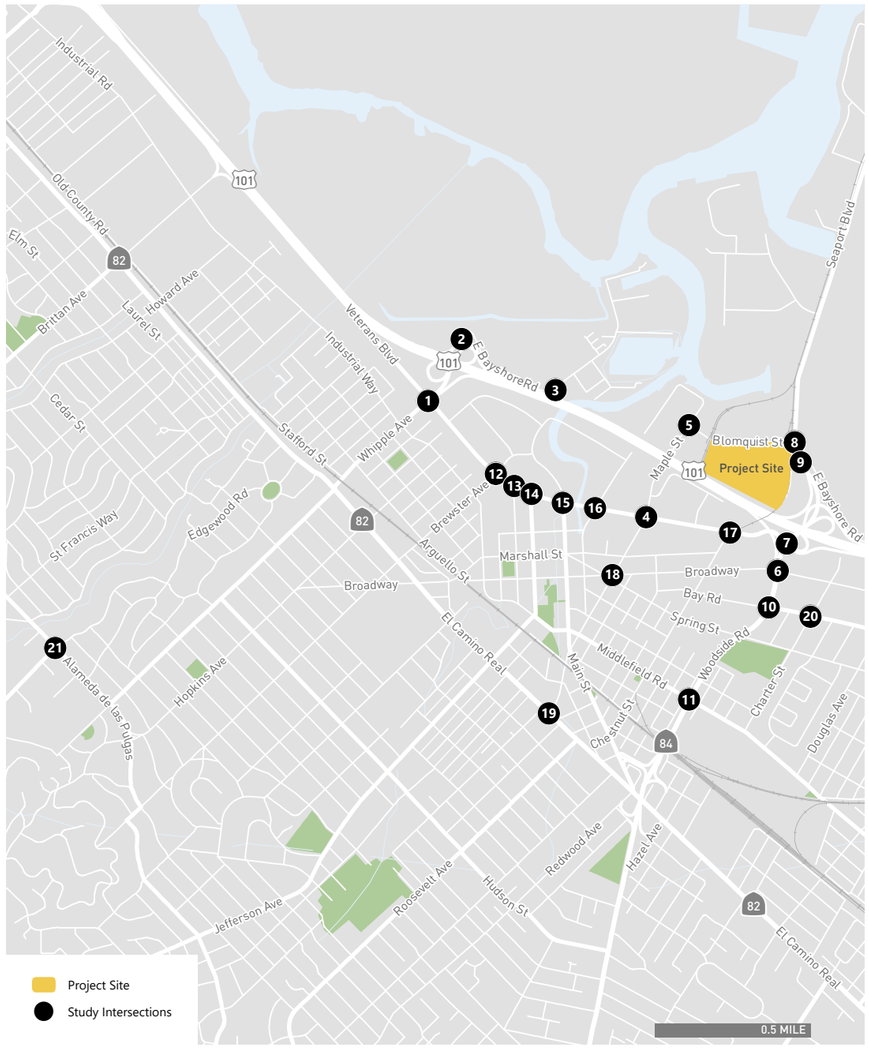
21. Alameda de las Pulgas/Edgewood Rd



SOURCE: Fehr & Peers

Figure 4.14-12

Peak Hour Traffic Volumes and Lane Configurations – Project trip Assignment with 101-84 Improvements



LEGEND

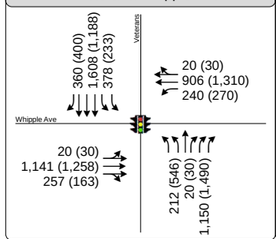
AM (PM) Peak Hour Traffic Volume

Lane Configuration

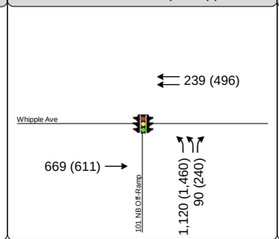
Stop Sign

Signalized

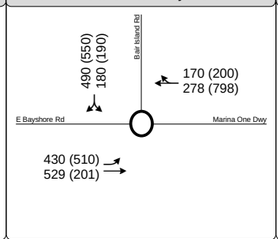
1. Veterans/Whipple Ave



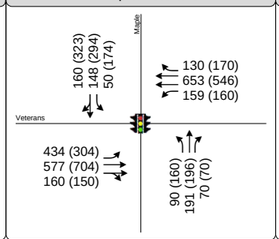
2. US 101 NB Off-Ramp/Whipple Ave



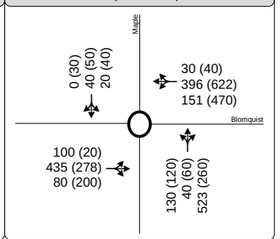
3. Bair Island Rd/E Bayshore Rd



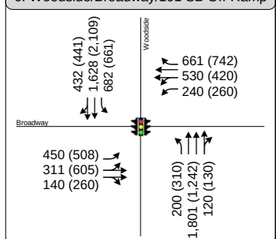
4. Maple/Veterans



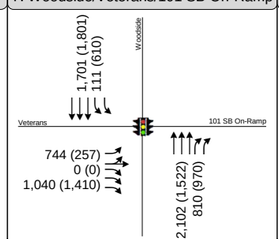
5. Maple/Blomquist



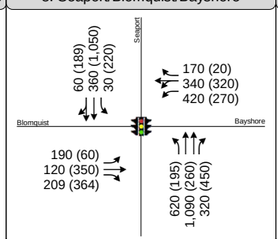
6. Woodside/Broadway/101 SB Off-Ramp



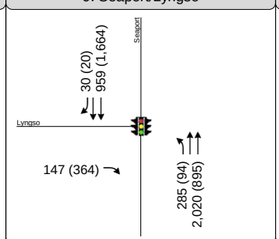
7. Woodside/Veterans/101 SB On-Ramp



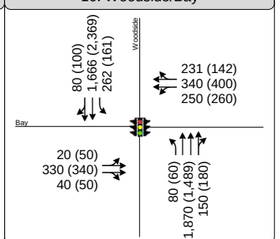
8. Seaport/Blomquist/Bayshore



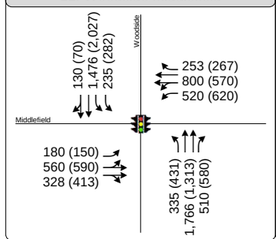
9. Seaport/Lyngso



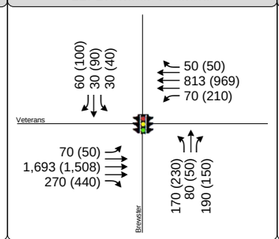
10. Woodside/Bay



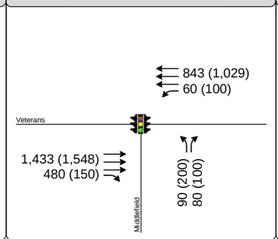
11. Woodside/Middlefield



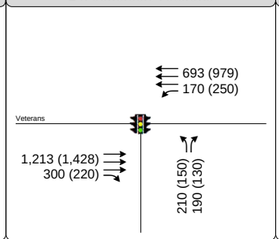
12. Brewster/Veterans



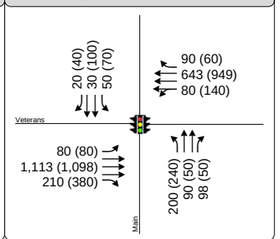
13. Middlefield/Veterans



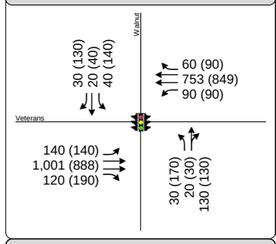
14. Jefferson/Veterans



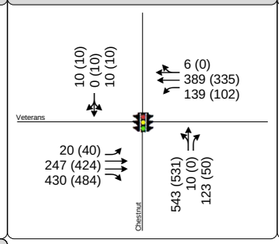
15. Main/Veterans



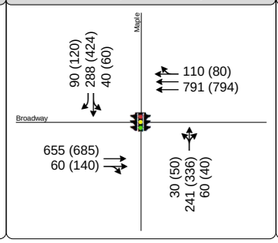
16. Walnut/Veterans



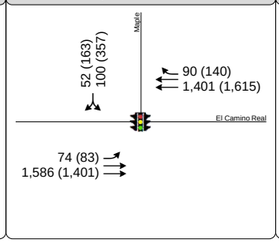
17. Chestnut/Veterans



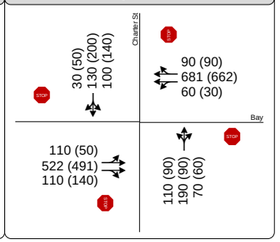
18. Maple/Broadway



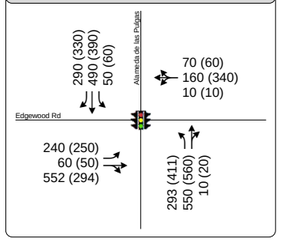
19. Maple/El Camino Real



20. Bay/Charter St



21. Alameda de las Pulgas/Edgewood Rd



SOURCE: Fehr & Peers

Harbor View Project . 170951

Figure 4.14-13

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project with 101-84 Improvements

The remaining intersections would operate at LOS E or F during the AM and/or PM peak hours. The implementation of the US 101/SR 84 Interchange Improvements project would improve operations at Veterans/Boulevard/Whipple Avenue, Blomquist Street/Maple Street, Blomquist Street/Seaport Boulevard/East Bayshore Road, Woodside Road / Broadway, Seaport Boulevard / Lyngso Lane, Edgewood Road/Alameda de las Pulgas, and Veterans Boulevard / Chestnut Street, although some of these intersection would continue to operate at unacceptable levels.

Cumulative Freeway Operations

The cumulative freeway mainline and ramp operations under the Cumulative No Project and Plus Project Conditions are presented in **Table 4.14-20** and **Table 4.14-21**. Cumulative growth not associated with the Project would cause nearly all of the segments to operate at LOS E or F under Cumulative No Project conditions. The Project would contribute traffic that exceeds one percent of the mainline capacity to several freeway ramps and mainline segments operating over capacity (LOS F) under Cumulative No Project conditions. These are considered significant impacts as described below.

TABLE 4.14-20
CUMULATIVE FREEWAY SEGMENT LOS RESULTS

Segment	Peak Hour	Dir.	Existing		Cumulative No Project			Cumulative Plus Project				
			V/C[b]	LOS	Vol.	V/C[a]	LOS	Added Trips	% of Cap.	Vol.	V/C	LOS
A. US 101, north of Whipple Avenue	AM	NB	0.89	E	10,243	**1.11**	**F**	60	0.7%	10,303	**1.12**	**F**
		SB	0.98	E	10,987	**1.19**	**F**	442	4.8%	11,429	**1.24**	**F**
	PM	NB	0.84	D	8,952	0.97	E	426	4.6%	9,378	**1.02**	**F**
		SB	0.88	D	10,235	**1.11**	**F**	88	1.0%	10,323	**1.12**	**F**
B. US 101, south of Whipple Avenue	AM	NB	0.92	E	9,255	**1.06**	**F**	30	0.3%	9,285	**1.07**	**F**
		SB	0.93	E	10,414	**1.20**	**F**	103	1.2%	10,517	**1.21**	**F**
	PM	NB	0.83	D	8,404	0.97	E	213	2.4%	8,617	0.99	E
		SB	0.86	D	9,694	**1.11**	**F**	114	1.3%	9,808	**1.13**	**F**
C. US 101, south of Woodside Road	AM	NB	0.98	E	9,586	**1.10**	**F**	331	3.8%	9,917	**1.14**	**F**
		SB	0.90	E	10,118	**1.16**	**F**	37	0.4%	10,155	**1.17**	**F**
	PM	NB	0.82	D	8,540	0.98	E	65	0.7%	8,605	0.99	E
		SB	0.89	E	9,777	**1.12**	**F**	319	3.7%	10,096	**1.16**	**F**

NOTES: **Bold** = exceeds CMP LOS standard. **Shaded** = significant impact. Dir. = Direction, Vol. = Volume

[a] V/C = Volume to Capacity ratio.

SOURCE: Fehr & Peers, 2018.

TABLE 4.14-21
CUMULATIVE FREEWAY RAMP LOS RESULTS

Freeway Interchange and Ramp [a]		Peak Hour	Existing		Cumulative No Project			Cumulative Plus Project				
			V/C[b]	LOS	Vol.	V/C[b]	LOS	Added Trips	% of Cap.	Vol.	V/C	LOS
US 101 / Woodside Road												
NB	Off-Ramp to Woodside Road	AM	0.86	D	2,024	1.01	**F**	331	16.6%	2,355	**1.18**	**F**
		PM	0.62	C	1,539	0.77	D	65	3.3%	1,604	0.80	D
	On-Ramp from Westbound Seaport Boulevard	AM	0.15	A	450	0.25	A	30	1.7%	480	0.27	A
		PM	0.32	B	580	0.32	A	213	11.8%	793	0.44	B
	On-Ramp from Eastbound Woodside Road	AM	0.46	C	1,200	0.67	C	0	0.0%	1,200	0.67	C
		PM	0.48	B	1,050	0.58	C	0	0.0%	1,050	0.58	C
SB	Off-Ramp to Eastbound Woodside Road	AM	0.29	A	660	0.37	B	89	4.9%	749	0.42	B
		PM	0.09	A	240	0.13	A	18	1.0%	258	0.14	A
	Off-Ramp to Westbound Woodside Road	AM	0.44	B	1,040	0.52	C	0	0.0%	1,040	0.52	C
		PM	0.50	C	1,410	0.71	C	0	0.0%	1,410	0.71	C
	On-Ramp from Woodside Road	AM	0.43	B	1,310	0.66	C	23	1.2%	1,333	0.67	C
		PM	0.62	C	1,890	0.95	E	223	11.2%	2,113	**1.06**	**F**
US 101/Whipple Avenue												
NB	Off-Ramp to Whipple Avenue	AM	0.51	C	1,200	0.60	C	0	0.0%	1,200	0.60	C
		PM	0.64	C	1,720	0.86	D	0	0.0%	1,720	0.86	D
	On-Ramp from Eastbound Whipple Avenue	AM	0.57	C	1,168	0.65	C	0	0.0%	1,168	0.65	C
		PM	0.51	C	1,483	0.82	D	0	0.0%	1,483	0.82	D
	On-Ramp from Westbound Whipple Avenue	AM	0.08	A	200	0.22	A	145	16.1%	345	0.38	B
		PM	0.08	A	370	0.41	B	443	49.2%	813	0.90	E
SB	Off-Ramp to Veterans Avenue/Whipple Avenue	AM	0.45	B	1,785	0.47	B	490	12.9%	2,275	0.60	C
		PM	0.36	B	1,480	0.39	B	181	4.8%	1,661	0.44	B
	On-Ramp from Westbound Whipple Avenue	AM	0.06	A	240	0.27	A	14	1.6%	254	0.28	A
		PM	0.18	A	155	0.17	A	96	10.7%	251	0.28	A
	On-Ramp from Eastbound Whipple Avenue	AM	0.30	A	812	0.41	B	0	0.0%	812	0.41	B
		PM	0.27	A	863	0.43	B	0	0.0%	863	0.43	B

NOTES: **Bold** = unacceptable LOS. **Shaded** = significant impact. Vol. = Volume

[a] NB = Northbound US 101; SB = Southbound US 101
[b] V/C = Volume to Capacity ratio

A theoretical capacity of 2,000 vehicles per hour (vph) is used for diagonal ramps and 1,800 vph is used for loop ramps.

SOURCE: Fehr & Peers, March 2015.

Impact TRANS-28: Under Cumulative Plus Project Conditions, the Project would add traffic volumes representing more than one percent of the segment's capacity to the following freeway segments exceeding their LOS standard and/or capacity without the Project:

A. Southbound US 101 north of Whipple Avenue – AM and PM peak hours

A. Northbound US 101 north of Whipple Avenue – PM peak hour

B. Southbound US 101 south of Whipple Avenue – AM and PM peak hours

C. Northbound US 101 south of Woodside Road – AM peak hour

D. Southbound US 101 south of Woodside Road – PM peak hour

(Criteria a and b). (Significant)

Mitigation of the Project contribution to this cumulative impact would require construction of an additional mixed-flow and/or HOV lane on them. However, this widening may not be feasible due to right-of-way constraints and the City's lack of authority to independently implement (the freeway is under Caltrans jurisdiction) the mitigation; therefore the impact remains significant and unavoidable.

> **Mitigation Measure TRANS- 28A**: The Project applicant shall exercise good faith efforts to work with Caltrans and the City to construct an additional mixed-flow and/or HOV lane on US 101 at Whipple Avenue and Woodside Road.
>
> **Significance after Mitigation:** Significant and Unavoidable

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> **Mitigation Measure TRANS-28B:** As a secondary mitigation measure, the Project would be responsible for developing and implementing the TDM Plan described in the "Transportation Demand Management" section. The TDM Plan must be approved by both the City of Redwood City and C/CAG prior to City approval of any development agreement.

Due to the severity of the congestion at this location, the likelihood that a TDM Plan could reduce this impact to less-than-significant levels is unlikely.

> **Significance after Mitigation:** Significant and Unavoidable

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Impact TRANS-29: Under Cumulative Plus Project Conditions, the Project would result in the addition of traffic volumes representing more than five percent of the ramp's capacity to the northbound US 101 Off-Ramp to Woodside Road and southbound US 101 On-Ramp from Woodside Road, which already exceed the ramp capacity in the AM and PM peak hours, respectively under Cumulative Plus Project Conditions (Criteria a and b). (Significant)

Mitigation of the cumulative Project impact would require additional capacity on the northbound US 101 Off-Ramp and southbound US 101 On-Ramp, requiring Caltrans approval. Ramp

capacity improvements are included as part of the US 101/SR 84 (Woodside Road) Interchange Improvement Project.

> **Mitigation Measure TRANS-29:** The Project applicant shall contribute its fair-share contribution to improvements to add capacity at the Woodside Road ramps and improvements to the US 101/SR 84 interchange pursuant to the US 101/SR 84 Interchange Improvement Project. The City shall ensure that the required fair-share payment has been submitted prior to issuance of the first building permit for the Project.

Implementation of Mitigation Measure TRANS-29 would increase capacity to the northbound US 101 off-ramp to Woodside Road and reduce the impact to a less than significant level. However, the US 101/SR 84 Interchange Improvement Project is under Caltrans's control with uncertain funding and is therefore not guaranteed to be constructed.

> **Significance after Mitigation:** Significant and Unavoidable

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Other Transportation Issues

This section includes a discussion of the potential impacts of the Project related to site access and circulation (Criterion d); pedestrian, bike, and transit facilities (Criterion f); emergency access (Criterion e); and air traffic (Criterion c) under Cumulative Plus Project conditions.

Cumulative Site Access and Circulation

Impact TRANS-30: Under Cumulative Plus Project Conditions, the Project would not result in hazards regarding site access and circulation (Criterion d). (Less than Significant)

Under Cumulative conditions, vehicle site access to the Project site would be similar to under Existing Plus Project Conditions. Under the cumulative scenario, parking will still be provided through two parking garages as well as surface parking throughout the site, accessed by the same driveways previously discussed. Commercial loading and truck access will remain the same as Existing Plus Project Conditions. The Project would not include design features that would result in roadway or vehicle hazards. In addition, the Project would not result in incompatible land uses that would increase hazards. Therefore, the impact to site access and circulation would be **less than significant**.

> **Mitigation:** None Required

Cumulative Pedestrian and Bicycle

Impact TRANS-31: Under Cumulative Plus Project Conditions, the Project would not conflict with adopted bicycle or pedestrian policies, plans, or programs, or decrease the performance or safety of those facilities (Criterion f). (Less than Significant)

The Project would result in the same marginal increase in pedestrian and bicycle activity under cumulative conditions as under Existing conditions and would provide the same pedestrian and bicycle facilities. The Project would not create new potential conflicts between various modes and would not conflict with existing plans for pedestrian and bicycle facilities service in the area. Additionally, pedestrian and bicycle improvements identified in *RWCmoves* may be implemented under Cumulative conditions. The increase in pedestrian and bicycle accessibility and safety throughout Redwood City would improve walkability and bikeability of the Project site and improve access overall. Therefore, the Project's impact to pedestrians and bicycle facilities would be **less than significant** under Cumulative Plus Project conditions.

Mitigation: None Required

Cumulative Transit

Impact TRANS-32: Under Cumulative Plus Project Conditions, the Project would not conflict with adopted transit policies, plans, or programs or decrease the performance or safety of transit facilities (Criterion f). (Less than Significant)

The Project would have the same impact on public transit under cumulative conditions as under existing conditions. The Project would not create new potential conflicts between various transit modes and would not conflict with existing plans for transit service in the area. Therefore, the Project's impact to transit service would be **less than significant** under Cumulative Plus Project conditions.

Mitigation: None Required

Cumulative Emergency Vehicle Access

Impact TRANS-33: Under Cumulative Plus Project Conditions, the Project would considerably contribute to inadequate emergency access (Criterion e). (Potentially Significant)

Under Cumulative conditions, emergency vehicle access to the Project site would be similar to under Existing conditions, with additional emergency vehicle access point through Blomquist Street to the Project site. Under current traffic conditions, it takes approximately four minutes to access the site from this fire station during the PM peak hour, which is less than the City's standard for emergency response time (five minutes or less for 85 percent of all calls). As shown

in **Table 4.14-22**, under Cumulative conditions, the additional traffic generated by future land use growth is expected to increase typical travel time between the fire station and the Project site to exceed the City's five minute threshold, with the Project contributing to worsening the travel time.

TABLE 4.14-22
CUMULATIVE – PM PEAK HOUR ESTIMATED EMERGENCY RESPONSE TIMES

Study Intersection	Reported Vehicle Delay on Northbound Maple Street		
	Existing	Cumulative No Project	Cumulative Plus Project
Maple Street / Veterans Blvd	0:22	2:04	2:10
Maple Street / Blomquist Street	0:10	0:12	0:51
Increased Travel Time	--	--	*+0:45*
Estimated Travel Time [a]	**4:00**	**5:44**	**6:29**

[a] Estimated travel time based on a review of Google maps during peak hours of congestion during the day. These estimates do not account for the fact fire department vehicles could bypass vehicle queues and red lights. Actual travel times may vary.

SOURCE: Fehr & Peers, 2018.

The majority of travel time delay is concentrated at the intersection of Maple Street/Veterans Boulevard. With emergency vehicle pre-emption equipment installed at this intersection, travel times for emergency vehicles will improve. Additionally, emergency response vehicles would be able to bypass the majority of traffic congestion and red lights, per the California Vehicle Code. Because of the wide shoulders along Maple Street and bicycle lanes on Blomquist Street, vehicles would be able to pull over to the side of the street and provide a clear travel path when an emergency vehicle with lights and sirens approaches. Therefore, the actual travel time to the Project site in an emergency in the future would be much faster than what is projected for non-emergency vehicles.

> **Mitigation Measure TRANS-33:** Prior to receiving the first certificate of occupancy for the Project, the Project applicant shall install emergency vehicle pre-emption equipment at the intersection of Maple Street/Veterans Boulevard to the satisfaction of the City.
>
> **Significance after Mitigation:** Less than Significant

Cumulative Air Traffic Patterns

Impact TRANS-34: Under Cumulative Plus Project Conditions, the Project would not result in substantial safety risks associated with a change in air traffic patterns (Criterion c). (Less than Significant)

As previously discussed, the Project's effects on air traffic patterns would be less-than-significant under Existing Plus Project Conditions. The Project's effect on air traffic patterns would also be **less than significant** under Cumulative Plus Project conditions.

Mitigation: None Required

4.14.9 Transportation Demand Management

C/CAG Requirements

C/CAG is the Congestion Management Agency for San Mateo County and develops the Congestion Management Program (CMP). As part of the land use element of the CMP, all projects that generate 100 or more new trips during the AM or PM peak hour are required to implement Transportation Demand Management (TDM) programs that have the capacity to reduce the demand for new peak-hour trips. The Project sponsor also has the option to reduce the scope of the Project to generate less than 100 peak hour trips or pay a one-time fee of $20,000 per new peak hour trip to a TDM fund.

The Project would generate more than 100 new vehicle trips during both the AM and PM peak hours. Therefore, per C/CAG guidelines, the Project sponsor has developed a draft TDM plan for the Project which is presented in **Table 4.14-23** and **Appendix F.5** to this Draft EIR.

The draft TDM Plan is currently under review by C/CAG. Conformance with the C/CAG requirement will be verified by the City during the Specific Development Plan/Use Permit review process that would be conducted prior to implementation of the Project.

C/CAG has identified acceptable TDM measures and assigned peak-hour trip credits that will be granted with implementation of each measure. Measures can be assembled from this menu of options such that the total number of trip credits is equal to or greater than the new peak-hour trips generated by the Project. These measures, once implemented, must be on-going for the occupied life of the development. Measures may be substituted, with prior approval of C/CAG, if the total number of trip credits offsets the new trips. In the following discussion, the number of new trips associated with the Project is used for the trip credit comparison. This reflects the nature of the TDM strategies at buildout.

To select a menu of TDM strategies appropriate for the Harbor View context, the TDM plan presented in a February 2018 Technical Memorandum was reviewed and considered a starting point for the Project. [10] As shown in Table 4.14-23, an example TDM plan similar to the one proposed in the memo, and largely similar to those in place at other large office parks in the region, would result in 2,076 trip credits, which is greater than the estimated peak hour trip generation for the Project of 1,282 trips. The Project applicant shall monitor the effectiveness of the TDM plan and submit annual monitoring reports to the City as described in the below TDM Monitoring section. The City would require the implementation of an appropriate TDM Plan for the life of the Project to reduce cumulative impacts on area roadways, per C/CAG requirements.

[10] *Preliminary Summary of TDM Strategies for Harbor View Development, Redwood City, California*; Kimley Horn & Associates, February 4, 2018.

TABLE 4.14-23
PRELIMINARY TDM PLAN AND C/CAG TRIP CREDIT REQUIREMENTS

TDM Measure	Amount [a]	C/CAG Credit Rate[b]	C/CAG Trip Credits
Secure bicycle storage - Bike racks/lockers	50	0.33	17
Showers and lockers[c]	5	10	75
Peak hour shuttle seats (22 seat shuttle, every 15 minutes)	88	2	176
Commuter checks (all transit riders)	412	1	412
Vanpool program (# of vans)[d]	5	10	50
Guaranteed Ride Home (all non-SOV users)	1107	1	1107
Preferential Carpool Parking	80	2	160
Preferential Vanpool Parking	5	7	35
Annual Employee Travel Survey	1	3	3
Alternative Work Schedules	135	0.2	27
Additional Credit for Providing Ten or more TDM Program Measures	1	5	5
Commute Assistance Center Features			
Staffed 4 hours / week	1	1	1
Transit Brochure Rack	1	1	1
Trip Planning Assistance	1	1	1
Bike to Work Program and Discounts	1	1	1
On-Site Amenities			
Fitness center and fitness classes	1	5	5
Total TDM Program Measure Trip Credits	**2,076**		
Estimated New Peak Hour Vehicle Trips	**1,282**		
Fulfills C/CAG Requirements?	**Yes**		

NOTES:

[a] All intervention amounts were calculated assuming 3,300 employees and mode splits common for San Mateo County, per the 2009 - 2013 US Census / ACS. Each amount assumes all users of the mode fully utilize the service, unless otherwise noted.
[b] Includes any increase in trip credits due to presence of Guaranteed Ride Home Program.
[c] Showers are awarded 10 trip credits each, with a 5 credit bonus for each combination of five bike lockers to one shower/changing room.
[d] Vanpool numbers are conservatively assumed to be on the lower end to reflect difficulty of maintaining vanpool ridership.

SOURCE: Fehr & Peers, C/CAG, 2018

TDM+ Analysis of Project

The TDM+ tool was used to assess the potential reduction in vehicle trips due to the implementation of the Project's TDM measures. The TDM+ tool is the result of Fehr & Peers' technical analysis of greenhouse gas (GHG) mitigation measures for the California Air Pollution Control Officers Association (CAPCOA) and the Bay Area Air Quality Management District (BAAQMD). This work yielded a comprehensive set of guidelines for assessing and quantifying reductions in vehicle miles travelled (VMT) and greenhouse gas (GHG) emissions associated with a suite of TDM strategies. The strategies cover a wide range of measures, from increasing transit frequency to implementing road pricing to encouraging location-efficient land uses, as well as more traditional TDM measures like ride-sharing programs and parking cash-out. On behalf of BAAQMD, Fehr & Peers developed an Excel-based tool that models the combined

effects of TDM strategies based on the literature review performed for the CAPCOA study. The model was subsequently tested, validated, and recalibrated based on nine Bay Area projects.

Based on the strategies chosen by the Project and presented in Table 4.14-23, the Harbor View TDM program would reduce peak hour vehicle trips by up to 11 percent as presented in **Table 4.14-24**.[11] **Table 4.14-25** presents the range of reduction expected from each measure. The inclusion of certain measures in TDM+ is based on the availability of high-quality, peer-reviewed research; some highly effective and innovative programs may not be included in the methodology (such as commuter shuttles as is typical on other campuses throughout the region), but could still significantly reduce the number of vehicle trips generated by the Project.

TDM Monitoring

The Project applicant shall submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, and the success of the measures expressed in AM and PM peak hour vehicle trips generated by the Project. The report shall be prepared by an independent City-approved transportation planning/engineering firm. City of Redwood City staff shall review each annual TDM report submitted by the Project applicant and verify that the trip counts meet the established targets or that the appropriate corrective measures are undertaken and/or fines are paid. The Project applicant shall also provide payment to the City, based on the City's estimated cost, to review the annual monitoring report.

Daily, hourly, and fifteen-minute period counts shall be taken at the Project driveways over a 2-week period. Counts obtained during the three midweek weekdays (Tuesday, Wednesday, Thursday) shall be averaged. Counts shall be performed between mid-February and late May (before the end of the school year) or between Labor Day and Thanksgiving week. Counts shall not be collected on days immediately before or after holidays or long weekends, and shall not be performed on days with inclement weather conditions.

The Project applicant shall work with the City to establish specific trip generation goals. If the allowable number of vehicle trips is exceeded, the applicant shall prepare a plan identifying additional TDM measures that will be implemented to assure compliance within 60 days of being notified by the City and implement them within 120 days from the notification date. Follow-up traffic counts shall be conducted to evaluate the effectiveness of the new TDM plan. If the target trip level is still exceeded, the applicant shall pay a penalty of $100 per extra vehicle trip (adjusted annually staring in 2019 per the Consumer Price Index for All Urban Consumers in the San Francisco-Oakland-San Jose area). Payments of these penalties are due to the City within 30 days of issuance of invoice.

[11] Measures related to the location of the site are fixed and are already accounted for in the trip generation as a part of the MXD+ analysis. Therefore, these measures are not presented in this table to avoid double counting the effectiveness of the TDM. With this TDM program in place, the vehicle trip generation could be expected to be reduced by 15-20 percent compared to what is presented in the ITE *Trip Generation Manuel*.

TABLE 4.14-24
TRIP GENERATION WITH TDM PLAN

Land Use	AM Peak Hour Trips	PM Peak Hour Trips
Project Trip Generation (from Table 4.14-7)	1,345	1,361
TDM Vehicle Trip Reduction	*183*	*185*
Total Vehicle Trips with TDM Plan	**1,162**	**1,176**

SOURCE: Fehr & Peers, 2018.

TABLE 4.14-25
TDM+ ANALYSIS OF PRELIMINARY TDM PLAN MEASURES

TDM Measure	Description	Potential Vehicle Trip Reduction
TDM Coordinator / Commute Trip Reduction Marketing	The Project applicant shall either provide TDM marketing services, or require tenants to appoint a TDM coordinator, responsible for marketing the promoting alternative modes to employees working at the site.	0.8%
Car Share Program	This Project will implement a car-sharing project to allow people to have on-demand access to a shared fleet of vehicles on an as-needed basis.	0.8%
Transit Fare Subsidy	This Project will provide subsidized/discounted daily or monthly public transit passes. The Project may also provide free transfers between all shuttles and transit to participants. These passes can be partially or wholly subsidized by the employer, school, or development.	3.3%
Alternative Work Schedules / Telecommute Program	Encouraging telecommuting and alternative work schedules reduces the number of commute trips and therefore VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed work weeks.	0.7%
Employer Sponsored Vanpool / Shuttle	This Project will implement an employer-sponsored vanpool or shuttle. A vanpool will usually service employees' commute to work while a shuttle will service nearby transit stations and surrounding commercial centers.	3.5%
Ride Share Program	Increasing the vehicle occupancy by ride sharing will result in fewer cars driving the same trip, and thus a decrease in VMT. The Project will include a ride-sharing program as well as a permanent transportation management association membership and funding requirement.	2.5%
Pedestrian Network	Providing pedestrian circulation within the Project site will decrease vehicle trips within buildings. Providing pedestrian connection to and from the site may encourage transit use to the site, which will decrease VMT.	2.0%

SOURCE: Fehr & Peers, 2018

CHAPTER 5
Alternatives

5.1 CEQA Requirements

CEQA requires an evaluation of the comparative effects of a "reasonable range" of alternatives to a project (CEQA Guidelines Section 15126.6[a]). The alternatives considered should feasibly attain most of the basic objectives of the project, even if such alternatives would impede, to some degree, the attainment of the project objectives. The alternatives should consider variations to the project or its location that would avoid or substantially lessen one or more of the significant effects of the project.

This chapter presents a meaningful comparative analysis of the proposed Harbor View Project ("Project") impacts, as identified in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR, to a range of alternatives to the Project, including "no project" alternatives required by CEQA. This chapter also presents a discussion of alternatives that were considered by the Lead Agency (City of Redwood City), but rejected from detailed analysis in this EIR. (CEQA Guidelines Sections 15126.6[a],15126.6[b], 15126.6[c], 15126.6[d] and 15126.6[e]).)

5.2 Factors Considered in Selection of Alternatives

The CEQA Guidelines recommend that an EIR briefly describe the rationale for selecting the alternatives to be discussed (CEQA Guidelines Section 15126.6[c]). The nature and scope of the "reasonable range of alternatives" to be discussed is governed by the "rule of reason." (CEQA Guidelines Section 15126.6[a] and 15126.6[f]).

5.2.1 Factors Considered in the Alternatives Analysis

The goal of the alternatives analysis considers the following factors:

1) The extent to which the alternative would accomplish most of the basic goals and objectives of the project;

2) The extent to which the alternative would avoid or lessen the identified significant and unavoidable environmental effects of the project;

3) The feasibility of the alternative, taking into account site suitability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations;

4) The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice; and

5) The requirement of the CEQA Guidelines to consider a "no project" alternative and to identify an "environmentally superior" alternative in addition to the no-project alternative.

5.2.2 Basic Objectives

As stated in factor #1 above, the selection of alternatives shall consider the basic goals and objectives of the project. The following basic objectives for the proposed Project are initially presented in section 3.4.2, *Project Objectives,* of Chapter 3, *Project Description*, and restated here for ease of reference:

1) Develop a lively working environment with office uses within the Inner Harbor to promote innovation and creativity.

2) Orient development toward internal open space and allow public access to accommodate bicycle and pedestrian linkages through the Project site toward future public open space near the water. Respect views of the water and hills by maintaining and enhancing key view corridors. Create a day/night environment that is safe and enjoyable for residents, employees, and visitors.

3) Cluster development to provide adequate buffer to adjacent industrial uses.

4) Provide publically-accessible recreation and open space amenities within the Project site, in support of the citywide adopted parkland standard.

5) Insist upon quality architecture, streetscapes, public place improvements, and other "placemaking" features.

6) Provide for new and improved pedestrian and bicycle connections between the Project site and Downtown Redwood City.

7) Plan for land use and circulation compatibility with adjacent institutional, industrial, and port-dependent uses, through effective building placement, orientation, and screening.

5.2.3 Significant and Unavoidable Impacts

As stated in factor #2 in section 5.2*, Factors Considered in the Alternatives Analysis*, the selection of alternatives shall consider the ability of each alternative to avoid or lessen the significant environmental impacts of the project. The significant impacts of the proposed Project are listed below, as they were identified throughout the analysis in Chapter 4.

Intersection Operations – Existing Plus Project (No Blomquist Extension)

- **Impact TRANS-1:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-2**: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-3:** The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade

from acceptable operations of LOS C to unacceptable operations of LOS F in the PM peak hour under Existing Plus Project without Blomquist Extension Conditions.

- **Impact TRANS-4**: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operate at LOS F in the PM peak hour under Existing Plus Project Conditions without Blomquist Extension Conditions.

Intersection Operations – Existing Plus Project (with Blomquist Extension)

- **Impact TRANS-7:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #7).

- **Impact TRANS-8:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #11).

- **Impact TRANS-9:** The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the AM and PM peak hours under Existing Plus Project Conditions.

- **Impact TRANS-10:** The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operates at LOS F in the PM peak hour under Existing Plus Project Conditions with Blomquist Extension Conditions.

Freeway Operations – Existing Plus Project (No Blomquist Extension)

- **Impact TRANS-12:** Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

  A. Southbound US 101 north of Whipple Avenue – AM peak hour
  C. Northbound US 101 south of Woodside Road – AM peak hour

- **Impact TRANS-13:** The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions.

Intersection Operations – Existing Plus Project (with Blomquist Extension)

- **Impact TRANS-14**: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

  A. Southbound US 101 north of Whipple Avenue – AM peak hour
  C. Northbound US 101 south of Woodside Road – AM peak hour

- **Impact TRANS-15:** The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions.

Cumulative Intersection Operations

- **Impact TRANS-22:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-23**: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-25:** The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the PM peak hour for intersection #3 Bair Island Road / East Bayshore Road.

- **Impact TRANS-27:** The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane in the PM peak hour.

Cumulative Freeway Operations

- **Impact TRANS-28**: Under Cumulative Plus Project Conditions, the Project would add traffic volumes representing more than one percent of the segment's capacity to the following freeway segments exceeding their LOS standard and/or capacity without the Project:

  A. Southbound US 101 north of Whipple Avenue – AM and PM peak hours
  A. Northbound US 101 north of Whipple Avenue – PM peak hour
  B. Southbound US 101 south of Whipple Avenue – AM and PM peak hours
  C. Northbound US 101 south of Woodside Road – AM peak hour
  D. Southbound US 101 south of Woodside Road – PM peak hour

- **Impact TRANS-29:** Under Cumulative Plus Project Conditions, the Project would result in the addition of traffic volumes representing more than five percent of the ramp's capacity to the northbound US 101 Off-Ramp to Woodside Road and southbound US 101 On-Ramp from Woodside Road, which already exceed the ramp capacity in the AM and PM peak hours, respectively under Cumulative Plus Project Conditions.

5.3 Alternatives Selected for Consideration

The Lead Agency identified the following reasonable range of alternatives to be addressed in this EIR. A comparative summary of each Project alternative is presented in **Table 5-1, Summary of Alternatives to the Project**, below. Each alternative is described in greater detail in the comparative analysis that follows in section 5.5, *Comparative Analysis*.

- **No Project – Existing General Plan (Light Industrial / Building Materials Use**). This alternative represents development that could likely occur on the Harbor View Project site pursuant to the natural course of growth under the existing Redwood City General Plan.

- **No Project – Existing Zoning (70/30 Research & Development [R&D] Lab + Ancillary R&D Office).** This alternative represents development that could likely occur on the Project site pursuant to the natural course of growth under the existing IR zoning designation, to the extent currently allowed by the General Plan.

- **Reduced Buildout and Building Height.** This alternative represents development of approximately 67 percent of the square footage of the proposed Project, with reduced building heights.

TABLE 5-1
SUMMARY OF ALTERNATIVES TO THE HARBOR VIEW PROJECT

	Proposed Project	No Project – Existing General Plan: *Light Industrial / Building Materials Use*	No Project – Existing Zoning: *70/30 R&D Lab + Ancillary R&D Office*	Reduced Buildout and Building Height	70/30 Office + Ancillary R&D Lab	Alternative Site Location	Onsite Public Amenities
Office (sf)	1,144,748	-	-	765,150 [a]	801,323	+/- 1,142,016	855,829
Amenities Building (sf) [b]	35,000	-	-	23,000 [a]	35,000	35,000	26,000
Low-Intensity Industrial / Building Materials (sf)	-	884,704	-	-	-	-	-
R&D Laboratory (sf)	-	-	578,076	-	343,425	-	-
R&D Office (sf)	-	-	247,747	-	-	-	-
Soccer Field Onsite (acres) [c]	-	-	-	-	-	-	+/- 4 acres
Ancillary Child Care (sf) [d]	-	-	-	-	-	-	+/- 15,000
Total Square Footage (sf)	1,179,748	884,704	825,823	788,150	1,179,748	+/- 1,179,748	881,829
# of Primary Buildings / Parking Structures	4 / 2	1 / 0	2 / 1	4 / 2 [e]	same	same	3 / 2 [e]
Total Site Acreage	27.08	27.08	27.08	27.08	27.08	+/- 27.08	27.08
Comparative Service Population, Vehicle Trips and GHG Emissions							
Service Population (Employees) [f]	4,579	1,911	2,418	3,061	4,053	4,579	3,423
Estimated Peak Hour AM/PM (Daily) Trip Generation [f]	1,254 AM / 1,282 PM (8,090 Daily) [g]	783 AM / 830 PM (6,047 Daily)	761 AM / 716 PM (5,601 Daily)	908 AM / 881 PM (5,959 Daily)	1,245 AM / 1,231 PM (8,712 Daily)	Similar to Proposed Project	1,025 AM / 1,078 PM (6,934 Daily)
GHG Emissions (MT CO_2e total and per Service Population annually)	10,538 2.3	7,937 4.2	6,745 2,8	6,905 2.3	9,636 2.4	Same	7,438 2.2

[a] Generally reduces each office building from seven stories to four and five stories, and reduces the amenities building from two stories to one story.
[b] Approximately three percent of total office floor area. Does not generate vehicle trips separate from that of the office use.
[c] Parking assumed on-street and in the proposed Project's parking lot during evening/weekend hours. No permanent field lighting or user amenities (e.g., bleachers, bathrooms) are assumed.
[d] Located within amenities building and for Project employee use only.
[e] Parking Structure A reduced from five stories to three stories. No change to Parking Structure B.
[f] Excludes ancillary uses and amenities building.

- **70/30 Office + Ancillary R&D Lab.** This alternative represents development that allows more square footage of regular Office use (70 percent of the overall development) combined with less R&D Lab use (30 percent **of** the overall development) than is allowed by the existing IR zoning designation.

- **Alternative Site Location.** This alternative represents development of the proposed Project at a location within Redwood City other than proposed Project site. The comparative analysis assumes that the offsite location would be within the Seaport Boulevard corridor given the lack of feasible sites elsewhere in the City.

- **On-site Public Amenities.** This alternative responds to comments received during scoping of the EIR. This alternative represents development similar to the Project, except with three office buildings (instead of the proposed four) to accommodate a range of one to four publically-accessible, adult soccer fields on one to four acres of the Project site.

5.4 Assumptions and Approach to the Comparative Analysis

The following assumptions and approaches apply to this alternatives analysis:

- As permitted by CEQA, the effects of the alternatives are discussed in less detail than the Project is discussed in Chapter 4, *Environmental Setting, Impacts and Mitigation Measures*, of this document. (CEQA Guidelines Section 15126.6[d]). However, the analysis is conducted at a sufficient level of detail to provide the public, other public agencies, and project decision-makers adequate information to fully evaluate the alternatives and approve any of the alternatives without further environmental review.

- All impacts are stated as levels of significance *after* implementation of mitigation measures identified in Chapter 4, except where discussion of pre-mitigation effects is relevant to the comparison.

- In most cases, the comparisons are qualitative and discussed in terms of whether the alternative would avoid a Project impact or result in a new impact not identified with the Project. If the impact *determination* (i.e., less-than-significant, less-than-significant after mitigation, or significant and unavoidable) of the alternative is the same as identified for the proposed Project, the comparison addresses the relative *degree* of the effect (i.e., “more severe” or “less severe” or “reduced” than identified for the Project if applicable.

- The impacts associated with the alternatives are analyzed based on Year 2040 buildout conditions, and where applicable, short-term construction conditions — the same as conducted in Chapter 4 of this EIR.

- Other relevant overarching development assumptions, such as phasing, site clean-up, infrastructure improvements, adherence to development standards, and contribution to the future Blomquist Bridge over Redwood Creek, are assumed to be generally the same as for the Project, except for the No Development scenario discussed in section 5.6 of this chapter.

- While the trip generation for each alternative is based on its respective land use program, other basic assumptions regarding the provision and design of pedestrian and bicycle facility improvements, site access, emergency access, circulation and loading, mode splits, transit,

vehicle travel patterns, air traffic, and construction are unlikely to change for each of the alternatives and are assumed to be generally the same as for the proposed Project.

- As indicated in the list of significant and unavoidable impacts in section 5.2 of this chapter, the proposed Project would cause significant impacts to several study intersections and mainline segments. Given several failing intersection operations that currently exist within the Woodside Road (SR 84) corridor in particularly, no level of reduced project would avoid significant impacts under the City's current delay based methodology under congested conditions. However, feasible reduced scenarios aimed at substantially reducing the proposed Project's significant unavoidable intersection impacts are discussed.

5.5 Comparative Analysis

This section presents the comparative analysis of the potential impacts of each alternative to the proposed Project, which is summarized in **Table 5-2, Impact Comparisons of Project Alternatives**.

5.5.1 No Project - Existing General Plan Alternative: *Light Industrial / Building Materials Use*

Description

The No Project – Existing General Plan alternative reflects development that could likely occur on the Project site, through the natural course of growth under the existing Light Industrial (LI) General Plan land use designation and development standards. The LI land use designation allows low-intensity industrial and building materials uses that are the same as the land uses that would continue to exist immediately north of the Project site and that previously existed on areas of the Project site.

As indicated in Table 5-1, this alternative assumes development of approximately 884,810 square feet of low-intensity industrial and building materials uses based on the maximum floor area ratio (FAR) of 0.75 allowed within the LI land use designation that applies to most (94 percent) of the 27.08-acre Project site.[1] Also based on the maximum FAR, development of this alternative would include one to three low-rise three-story industrial or building materials building(s), compared to the four seven-story office buildings with the proposed Project. Also, this alternative assumes no parking structures would be developed; required surface parking would be provided throughout the site.

[1] 27.08 acres equals 1,179,605 square feet of site area, multiplied by a 0.75 FAR totals 884,704 square feet of building area.

TABLE 5-2
IMPACT COMPARISON OF THE PROJECT ALTERNATIVES

	Proposed Project	No Project – Existing General Plan: *Light Industrial / Building Materials Use*	No Project – Existing Zoning: *70/30 R&D Lab + Ancillary R&D Office*	Reduced Buildout and Building Height	70/30 Office + Ancillary R&D Lab	Alternative Site Location	Onsite Public Amenities
4.1 Aesthetics	LS	LS⇩	LS⇩	LS⇩	LS	LS	LSM [1]
4.2 Air Quality (Construction)	LSM	LSM⇩	LSM⇩	LSM⇩	LSM	LSM	LSM⇩
Air Quality (Operations)	LS	LS⇩	LS⇩	LS⇩	LS	LS	LSM [2]
4.3 Biological Resources	LSM	LSM	LSM	LSM	LSM	LSM	LSM
4.4 Cultural / Tribal Resources	LSM	LSM	LSM	LSM	LSM	LSM	LSM
4.5 Geology and Soils	LS	LS	LS	LS	LS	LS	LS
4.6 Greenhouse Gases / Climate Change	LS	LSM	LS⇧	LS	LS	LS	LS
4.7 Hazards / Hazardous Materials	LSM	LSM	LSM	LSM	LSM	LSM	LSM
4.8 Hydrology and Water Quality	LSM	LSM⇩	LSM⇩	LSM	LSM	LSM	LSM⇩
4.9 Land Use and Planning	LS	LS	LS	LS	LS	LS	LS
4.10 Noise (Construction)	LSM	LSM⇩	LSM⇩	LSM⇩	LSM	LSM	LSM⇩
Noise (Operations)	LS	LS⇩	LS⇩	LS⇩	LS	LS	LS⇩ / LSM[3]
4.11 Population, Housing and Employment	LS	LS⇩	LS⇩	LS⇩	LS	LS	LS⇩
4.12 Public Services / Recreation	LS	LS⇩	LS⇩	LS⇩	LS	LS	LS⇩
4.13 Utilities / Service Systems	LS	LS⇩	LS⇩	LS⇩	LS	LS	LS⇩
4.14 Transportation / Circulation	SU	SU⇩	SU⇩	SU⇩	SU	SU	SU⇩

[1] Light/glare from new as-needed recreational lighting
[2] Exposure of sensitive receptors to TACs
[3] Land Use Noise Compatibility

NOTES: Impacts shown for most severe impact under each environmental topic.

LS Less than significant; no mitigation required

LSM Less than significant impact after implementation of all feasible mitigation measures

SU Significant and Unavoidable after implementation of all feasible mitigation measures

⇧⇩ Impact is more severe (⇧) or less severe/reduced (⇩) than the Project impact, but with no change in impact determination.

Bold means the impact determination differs from the Project impact.

Shading means the *degree* of impact is substantially different from the proposed Project impact.

Aesthetics

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (no mitigation required) aesthetics impacts as the Project. Development of this alternative would be one single low-rise industrial or building materials building, compared to the four seven-story office buildings with the proposed Project. Also, the Project's three- and five-story parking structures on the northeast and west edges of the site, respectively, would not be developed with this alternative. Therefore, development with this alternative would not be as visible from public viewpoints as the Project development would be.

This analysis does not assume that less new development, or less visibility of new development, necessarily means a less adverse environmental visual character or visual quality effect than with the Project. This alternative would not adversely affect the existing visual character or visual quality of the area any more than the proposed Project would, given that the visual character of the surrounding area is a mix of light and heavy industrial, and office and port-related activity. The reduced overall development, building heights, and typical building finishes associated with the industrial or building material uses in this alternative would likely have less severe effects of shadow and light/glare compared to those with the proposed Project, but would remain less than significant.

Air Quality

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction air quality impacts, and reduced less-than-significant operational air quality emission impacts, compared to the Project. This determination considers that this alternative would allow construction of about 75 percent of the building area proposed by the Project (885 ksf compared to 1.18 msf). This would result in less construction activity than would occur with the Project, which would therefore result in relatively fewer criteria air pollutant emissions during construction. However, the less-than-significant impact and the construction-period mitigation measures addressing criteria pollutants would conservatively still apply with this alternative. Less-than-significant impacts regarding construction odors and TACS would be the same as with the Project.

This alternative would generate substantially fewer peak-hour vehicle trips (38 and 65 percent fewer) and daily vehicle trips (26 percent fewer) than the Project, which would result in lower operational emissions compared to the proposed Project. All operational air quality impacts would remain less-than-significant, and no mitigation measures would be required, the same as the proposed Project.

Biological Resources

The No Project – Existing General Plan Alternative would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. This alternative would involve less development than the Project, with the construction of a single main low-rise building and no parking structures (instead of five buildings and two parking structures). The Project site is not located near any areas of existing sensitive habitat or

wetlands; therefore, neither the alternative nor the Project would involve construction or operations near such areas. However, all mitigation measures would continue to apply to the alternative and address potential impacts to nesting birds, roosting bats and avian collisions and protected trees. Development of this alternative would also be required to adhere to mitigation measures addressing potential impacts to any protected trees that would be removed or replaced.

Cultural / Tribal Resources

The No Project – Existing General Plan Alternative would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. This alternative would involve similar overall construction and excavation activities as the Project, which would require the same standard mitigation measures to address the potential resource discovery of archaeological and paleontological resources and human remains. No historic resources exist that could be potentially affected.

Geology and Soils

The No Project – Existing General Plan Alternative would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project and would be subject to the same geologic hazard conditions. As a result, this alternative would require adherence to the same regulatory requirements that ensure less-than-significant impacts.

Greenhouse Gases / Climate Change

The No Project – Existing General Plan Alternative would result in reduced total emissions, but would exceed the 2030 efficiency threshold, resulting in a new significant but mitigable GHG emissions impact compared to the less-than-significant impacts identified with the Project. While this alternative would have substantially fewer 783 AM / 830 PM daily trips compared to the Project (approximately 26 percent fewer) (and mobile emissions are the most substantial GHG emissions source), this determination is also influenced by this alternative's lower substantially lower service population associated with the light industrial use, which is approximately 58 percent less than with the proposed Project (1,911 compared to 4,579 persons). The ratio of total GHG emissions per person onsite is greater since the emissions are reduced (improved) as service population increases, as shown below.

Considering the reduction in total daily vehicle trips, this alternative would also have lower total GHG emissions compared to the Project (7,937 compared to 10,538 MT CO2e), although still more than the significance threshold of 1,100 MT CO2e annually. Also, this alternative would have higher total annual GHG emissions per service population compared to the Project (4.2 compared to 2.3 MT CO2e), which would not exceed the year 2020 significance threshold of 4.6 MT CO2e per service population annually (see Table 4.6-8 in Section 4.6, Greenhouse Gas Emissions and Energy, in Chapter 4 of this EIR). However, the 4.2 MT CO2e per service population annually with this alternative would exceed the year 2030 significance threshold of 2.8 MT CO2e per service population annually.

As a result, this alternative would have a new significant impact because it would exceed both of the significance thresholds (total and annual service population for 2030).

The new significant impact with this alternative is presumably avoidable, since the estimated 11 percent reduction in peak-hour vehicle trips through use of the Project TDM is estimated to reduce total emissions by at least approximately 1.4 MT CO2e - the reduction needed to be below the 2.8 MT CO2e significance threshold for 2030.[2] A larger project or and land use with a higher employee-per-square-foot ratio could effectively lower the per service population ratio, but consequently increase the total emissions. Because the significant impact would be reduced to less than significant with the mitigation measure, this alternative is not considered in conflict with regulatory plans adopted for the purpose of reducing GHG emissions, same as the Project.

Hazards and Hazardous Materials

The No Project – Existing General Plan Alternative would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project, including on areas where there may be hazardous conditions disturbed and transported during construction. Also, the alternative would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Hydrology and Water Quality

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities that could alter drainage patterns on the Project site, including in areas that may contain contaminants. The effect on existing stormwater infrastructure is conservatively considered the same with the Project, and the mitigation measure would continue to apply to this alternative. However, this alternative involves fewer buildings to be constructed, which may provide opportunities for additional pervious area on the site, which may actually reduce the potential adverse effects to water quality. Also, the alternative would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The No Project - General Plan Alternative would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. This alternative proposes development consistent with the General Plan, which would develop light industrial and building materials uses consist with nearby land uses, including those involving rail, truck, port, building

[2] The Project TDM program shown in Table 4.11-25 in Section 4.11*, Transportation and Traffic*, of this Draft EIR is assumed to also apply to this alternative and would reduce peak hour vehicle trips by up to 11 percent, as shown in Table 4.11-24 of that section.

supply and concrete processing (Graniterock) activities. The alternative would not pose conflicts with other existing land use plans or policies. The impacts to land use and planning would be the same with this alternative as for the Project.

Noise

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction noise impacts and reduced less-than-significant operational noise impacts compared to the Project. This determination considers that this alternative would construct about 75 percent of the building area proposed by the Project (885 ksf compared to 1.18 msf). This would not necessarily result in less construction noise levels than would occur with the Project; construction activities would be the same as with the Project, as would the standard construction noise regulations and practices. However, the alternative could have a shorter construction duration, but the less-than-significant impact and the construction-period mitigation measures would conservatively still apply with this alternative. Less-than-significant impacts regarding ground bourne vibration would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour vehicle trips (38 and 65 percent fewer), which would result in lower operational (traffic) noise compared to the proposed Project. The smaller development would also have reduced ground bourne vibration during its operations. Overall, the alternative would have less-than-significant operational noise impacts with no mitigation measures required, which is the same as with the proposed Project.

Population, Housing and Employment

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (no mitigation measures) population, housing and employment impacts compared to the Project. This alternative would develop less building area than proposed by the Project (884 ksf compared to 1.18 msf), with Light Industrial uses. Overall growth with this alternative would be less than the employment anticipated with the proposed Project (1,911 compared to 4,579, or 58 percent fewer).[3] Less employment growth largely results in reductions in other impacts (e.g., utility and public service demands). Also, like the Project, no aspect of this alternative would result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people.

Public Services and Recreation

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (no mitigation measures) public services and recreation impacts compared to the Project. This alternative will generate fewer employees than the proposed Project (1,911 compared to 4,579, or 58 percent fewer). As a result, to the extent that employees generate demand for public services, specifically police, fire and emergency services, schools, libraries and parks, this alternative would

[3] 884,704 square feet of Light Industrial uses at 463 employees per building area (1,911) employees (USGBC, 2008).

have a reduced demand for these public services and recreation compared to the Project. The impacts however would be the same less-than-significant effects as with the proposed Project.

Utilities and Service Systems

The No Project – Existing General Plan Alternative would result in reduced less-than-significant (no mitigation measures) utilities and service system impacts compared to the Project. This alternative would develop less building area than proposed by the Project (884 ksf compared to 1.18 msf). Also, as discussed above for population, housing and employment, this alternative will generate fewer new employees than the proposed Project (1,911 compared to 4,579, or 58 percent fewer than the Project) and would adhere to the same regulatory compliance regarding water quality and drainage effects. The impacts would be reduced but remain less than significant, the same as the proposed Project.

Transportation and Traffic

The No Project – Existing General Plan Alternative would result in reduced significant traffic impacts (with implementation of mitigation measures) compared to the Project. The development program is about 75 percent of the building area proposed by the Project (885 ksf compared to 1.18 msf). Therefore, this alternative would generate substantially fewer peak-hour vehicle trips (38 and 65 percent fewer) and daily vehicle trips (26 percent fewer), which would result in less traffic on area intersections and roadways compared to the proposed Project. Nonetheless, many of the adversely affected intersection and freeway conditions nearby, specifically within the Woodside Avenue (SR84) corridor, are substantially over-capacity under existing conditions that will continue under even relatively minimal new trips (as discussed in section 5.4, *Assumptions and Approach to the Comparative Analysis*, in this chapter). The alternative would also have the same less-than-significant (no mitigation measures required) transportation impacts regarding circulation, air traffic, transit, and pedestrian and bicycle considerations. Overall, the same significant and less-than-significant traffic and transportation impacts identified with the Project would continue to occur with this alternative, although the contribution of new traffic would be less than with the Project.

5.5.2 No Project - Existing Zoning Alternative: *70/30 R&D Lab + Ancillary R&D Office*

Description

The No Project – Existing Zoning Alternative reflects development that could likely occur on the Project site through the natural course of growth under the existing Industrial – Restricted (IR) zoning designation, to the extent that the growth is within allowances currently permitted by the General Plan. The majority of the Project site is within the IR zoning designation, which is the basis for this alternative.[4]

[4] The IR zone applies to 94 percent of the 27.08-acre Project site and to adjacent areas west and north of the Project site. The General Industrial (GI) zone applies to the remaining 6 percent of the Project site — the northeast most corner.

As shown in Table 5-1, this alternative assumes the development of two buildings totaling 578,076 square feet of R&D / Laboratory use (70 percent) and 247,747 square feet of ancillary R&D Office use (30 percent), for a total building area of 825,823 square feet on the Project site, based on land uses and development standards allows by the IR zoning.[5,6] Because only two buildings would be constructed on the site, this alternative assumes that the taller of the two parking structures (Parking Structure A on the west edge of the site) would not be developed and that the project would include more surface parking instead of a second parking structure. Considering the maximum FAR allowed, the two buildings developed with this alternative would be approximately two to three stories tall compared to the four seven-story office buildings with the proposed Project.

Aesthetics

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (no mitigation required) aesthetics impacts as the Project. The two buildings developed with this alternative would be approximately two to three stories tall compared to the four seven-story office buildings with the proposed Project. As a result, development with this alternative would be less visible from public viewpoints compared to the proposed Project development.

This analysis does not assume that relatively lower building height or less visibility necessarily means a less adverse environmental effect than with the Project. In particular, this alternative would not adversely affect the existing visual character or visual quality of the area any more than the proposed Project would, given that the existing site surroundings are a mix of industrial, office and port-related activities and development in which the low-rise building and R&D use fits. However, the reduced overall development and building heights with this alternative would have less severe effects of light/glare compared to the proposed Project, but those effects would remain less than significant.

Air Quality

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction air quality impact, and reduced less-than-significant operational air quality emission impacts, compared to the Project. This determination considers that this alternative would allow construction of about 70 percent of the building area proposed by the Project (826 ksf compared to 1.18 msf). This would result in less construction activity than would occur with the Project, which would therefore result in relatively fewer criteria air pollutant emissions during construction. However, the less-than-significant impact

5 Article 2.2 (*Definitions)* of the Redwood City Zoning Code defines "Research and Development, Laboratory Type" as a use for which the R&D components require substantial laboratory space and/or other equipment for testing or development, which may also include associated adjacent or nearby workstations for recording or preparing written documentation of research. Typical R&D Lab uses may include, but are not limited to, biotechnical firms and pharmaceutical research laboratories. The Zoning Code defines "Research and Development, Office Type" as a use for which the R&D components primarily occur in an office setting, with minimal laboratory area or research equipment, other than computers and other related electronic equipment. Typical office type research and development uses may include, but are not limited to, computer software and computer simulation firms.

6 27.08 acres equals 1,179,747 square feet of site area, multiplied by a 0.7 FAR per the IR zoning, totals approximately 825,823 square feet of building area, 70 percent of which is approximately 578,076 square feet of R&D Lab use, and 30 percent of which is approximately 247,747 square feet of R&D Office use.

and the construction-period mitigation measures addressing criteria pollutants would conservatively still apply with this alternative. Less-than-significant impacts regarding construction odors and TACS would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour vehicle trips (39 and 44 percent fewer) and daily vehicle trips (31 percent fewer) than the Project, which would result in lower operational emissions compared to the proposed Project. All operational air quality impacts would remain less-than-significant, and no mitigation measures would be required, the same as the proposed Project.

Biological Resources

The No Project – Existing Zoning Alternative would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. This alternative would involve less development than the Project, with the construction of two buildings and one parking structures (instead of four main buildings and two parking structures). The Project site is not located near any areas of existing sensitive habitat or wetlands, therefore neither the alternative nor the Project would involve construction or operations near such areas. However, and address potential impacts to nesting birds, roosting bats and avian collisions and protected trees. Development of this alternative would also be required to adhere to mitigation measures addressing potential impacts to any protected trees that would be removed or replaced.

Cultural / Tribal Resources

The No Project – Existing Zoning Alternative would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. This alternative would involve similar overall construction and excavation activities as the Project, which would require the same standard mitigation measures to address the potential resource discovery of archaeological and paleontological resources and human remains. No historic resources exist that could be potentially affected.

Geology and Soils

The No Project – Existing Zoning Alternative would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project and would be subject to the same geologic hazard conditions. As a result, this alternative would require adherence to the same regulatory requirements that ensure less-than-significant impacts.

Greenhouse Gases / Climate Change

The No Project – Existing Zoning Alternative would result in increased emissions per annual service population and reduced total emissions, and would result in the same less-than-significant GHG emissions impacts, compared to the Project. This alternative will generate substantially fewer peak-hour trips (39 and 44 percent fewer) and fewer daily vehicle trips (31 percent fewer) compared to the Project. Although mobile emissions are the most substantial GHG

emissions source, this alternative's lower service population associated with the R&D Lab and R&D Office uses (2,418 compared to 4,579 persons) increases the emissions per person onsite, since the emissions are reduced (improved) as service population increases, as shown below. Considering the reduction in total daily vehicle trips, this alternative would also have lower total GHG emissions compared to the Project (6,745 compared to 10,538 MT CO2e), although still more than the significance threshold of 1,100 MT CO2e annually. However, this alternative would have more total annual GHG emissions per service population compared to the Project (2.8 compared to 2.3 MT CO2e), which would meet but not exceed the year 2020 threshold of 4.6 MT CO2e, but would meet but not exceed the year 2030 significance thresholds of 2.8 MT CO2e. Like the Project, this alternative would not be in conflict with regulatory plans adopted for the purpose of reducing GHG emissions. Overall, the GHG impacts would remain less-than-significant, the same as the proposed Project.

Hazards and Hazardous Materials

The No Project – Existing Zoning Alternative would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project, including on areas where there may be hazardous conditions disturbed and transported during construction. Also, the alternative would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Hydrology and Water Quality

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts compared to the Project. This alternative would involve similar overall construction, excavation and earthmoving activities that could alter drainage patterns on the Project site, including in areas that may contain contaminants. The effect on existing stormwater infrastructure is conservatively considered the same with the Project, and the mitigation measure would continue to apply to this alternative. This alternative involves fewer buildings to be constructed, which may provide opportunities for additional pervious area on the site, which may actually reduce the potential adverse effects to water quality. Also, the alternative would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The No Project – Existing Zoning Alternative would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. This alternative proposes development consistent with the zoning and General Plan, which would develop a mix of R&D Lab with ancillary R&D Office uses, which would be compatible with the mix of nearby industrial uses (e.g., rail, truck, port, building supply and the Graniterock concrete processing). This scenario assumes that the buildings and parking structure would be located on the site to provide some level of buffer between these surrounding uses and the new R&D campus. The

alternative would not pose conflicts with other existing land use plans or policies. The impacts to land use and planning would be the same with this alternative as the Project.

Noise

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction noise impacts, and reduced less-than-significant operational noise impacts, compared to the Project. This determination considers that this alternative would construct about 70 percent of the building area proposed by the Project (826 ksf compared to 1.18 msf). This would not necessarily result in less construction noise levels than would occur with the Project; construction activities would be the same as with the Project, as would the standard construction noise regulations and practices. However, the alternative could have a shorter construction duration, but the less-than-significant impact and the construction-period mitigation measures would conservatively still apply with this alternative. Less-than-significant impacts regarding ground bourne vibration would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour vehicle trips (39 and 44 percent fewer) and fewer daily vehicle trips (31 percent fewer), which would result in lower operational (traffic) noise compared to the proposed Project. The smaller development would also have reduced ground bourne vibration during its operations. Overall, the alternative would have less-than-significant operational noise impacts with no mitigation measures required, which is the same as with the proposed Project.

Population, Housing and Employment

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (no mitigation measures) population, housing and employment impacts as the Project. This alternative would develop less building area than proposed by the Project (826 ksf compared to 1.18 msf), with a mix of R&D Lab with ancillary R&D Office uses. Overall employment with this alternative would be substantially less than the proposed Project (2,418 compared to 4,579, or 47 percent fewer).[7] Less employment largely results in comparable reductions in other effects (e.g., utility and public service demands). Also, like the Project, no aspect of this alternative would result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people.

Public Services and Recreation

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (no mitigation measures) public services and recreation impacts as the Project. This alternative will generate fewer employees than the proposed Project (2,418 compared to 4,579, or 47 percent fewer). As a result, compared to the Project, the demand for public services, specifically police, fire and emergency services, schools, libraries and parks would be reduced with this alternative,

[7] 247,747 square feet of R&D Office use at 250 employees per building area (991 employees), plus 578,076 square feet of ancillary R&D Lab use at 405 employees per building area (1,427 employees), totals 2,418 employees (USGBC, 2008).

as would the potential use of park facilities. The impacts would be the same less-than-significant effects as the proposed Project.

Utilities and Service Systems

The No Project – Existing Zoning Alternative would result in reduced less-than-significant (no mitigation measures) utilities and service system impacts as the Project. This alternative would develop less building area than proposed by the Project (826 ksf compared to 1.18 msf). Also, this alternative will generate substantially fewer new employees than with the proposed Project (2,418 compared to 4,579, or 47 percent fewer). The degree of reduced population would also reduce the less-than-significant utility and service system demands compared to the Project. This alternative would adhere to the same regulatory compliance regarding water quality and drainage effects, and the impacts would be the same as the proposed Project.

Transportation and Traffic

The No Project – Existing Zoning Alternative would result in reduced significant traffic impacts (with implementation of mitigation measures) compared to the Project. The development program of this alternative is about 70 percent of the building area proposed by the Project (826 ksf compared to 1.18 msf). Therefore, this alternative would also generate substantially fewer peak-hour vehicle trips (39 and 44 percent fewer) and daily vehicle trips (31 percent fewer), which would result in less traffic on area intersections and roadways compared to the proposed Project. Nonetheless, many of the adversely affected intersection and freeway conditions nearby, specifically within the Woodside Avenue (SR84) corridor, are substantially over-capacity under existing conditions that will continue under even relatively minimal new trips (as discussed in section 5.4, *Assumptions and Approach to the Comparative Analysis*, in this chapter). The alternative would also have the same less-than-significant (no mitigation measures required) transportation impacts regarding circulation, air traffic, transit, and pedestrian and bicycle considerations. Overall, the same significant and less-than-significant traffic and transportation impacts identified with the Project would continue to occur with this alternative, although the contribution of new traffic would be less than with the Project.

5.5.3 Reduced Buildout / Building Height Alternative

Description

This alternative represents development that would have less floor area and lower building height compared to the proposed Project. This alternative is included in this analysis to demonstrate an alternative that could reduce and/or eliminate one or more significant unavoidable impacts identified with the proposed Project.

As shown in Table 5-1, this alternative assumes a total development of 788,150 square feet, resulting from reducing each of the four office buildings from seven stories to a mix of four and five stories, and from reducing the ancillary building from two stories to one story. Given the

degree of reduced development and change of use, this alternative assumes that the taller of the two parking structures (Parking Structure A on the west edge of the site) would also be reduced from five to three stories. This alternative reflects approximately 67 percent of the proposed Project floor area.[8]

Aesthetics

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (no mitigation required) aesthetics impacts as the Project. This alternative would not be as visible from public viewpoints as the Project development would. As described above, the office buildings would be reduced from seven stories to a mix of four and five stories, however, the building footprints and configuration on the site would be the same as the proposed Project.

As previously described for the No Project alternatives under existing General Plan and zoning guidance, this analysis does not assume that relatively lower building height or less visibility of the development necessarily means a less adverse environmental effect than identified with the Project. The effect on the existing visual character or visual quality of the area would be the same as for the proposed Project. However, the reduced overall development and building heights with this alternative would have less severe effects of shadow and light/glare compared to the proposed Project, but these effects would remain less than significant.

Air Quality

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction air quality impacts, and reduced less-than-significant operational air quality emission impacts, compared to the Project. This determination considers that this alternative would allow the construction of about 67 percent of the building area proposed by the Project (788 ksf compared to 1.18 msf). This would result in less construction activity than would occur with the Project, which would therefore result in relatively fewer criteria air pollutant emissions during construction. However, the less-than-significant impact and the construction-period mitigation measures addressing criteria pollutants would conservatively still apply with this alternative. Less-than-significant impacts regarding construction odors and TACS would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour vehicle trips (28 and 32 percent fewer) and daily vehicle trips (27 percent fewer) than the Project, which would result in lower operational emissions compared to the proposed Project. All operational air quality impacts would remain less-than-significant, and no mitigation measures would be required, same as the proposed Project.

[8] Total building area of 788,150 square feet is approximately 67 percent of the proposed Projects total 1,179,748 square feet. The proposed Project's proportion of office use (97 percent or 765,150 sq.ft.) to amenities building use (3 percent or 23,000 sq.ft.) is applied.

Biological Resources

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. This alternative would involve generally the same buildings as proposed with the Project, although the structures would likely be lower in height. The Project site is not located near any areas of existing sensitive habitat or wetlands, therefore neither the alternative nor the Project would involve construction or operations near such areas. However, all mitigation measures to address potential impacts to nesting birds, roosting bats and avian collisions and protected trees would continue to apply to the alternative.

Cultural / Tribal Resources

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. This alternative would involve similar overall construction and excavation activities as the Project, which would require the same standard mitigation measures to address the potential resource discovery of archaeological and paleontological resources and human remains. No historic resources exist that could be potentially affected.

Geology and Soils

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project and would be subject to the same geologic hazard conditions. As a result, this alternative would require adherence to the same regulatory requirements that ensure less-than-significant impacts.

Greenhouse Gases / Climate Change

The Reduced Buildout / Building Height Alternative would result in similar less-than-significant GHG emissions impacts as the Project. This determination is based on the substantially fewer peak-hour vehicle trips (28 and 32 percent fewer) and daily vehicle trips (27 percent fewer) associated with this alternative compared to the Project, since mobile emissions are the most substantial GHG emissions source. This determination also considers this alternative's lower service population associated with the reduced office development, which is approximately 33 percent less than with the proposed Project (3,061 compared to 4,579 persons).

Considering the reduction in total daily vehicle trips, this alternative would also have lower total GHG emissions compared to the Project (6,905 compared to 10,538 MT CO2e). However, it would have the same total annual GHG emissions per service population compared to the Project (2.3 compared to 2.3 MT CO2e), which would not exceed the year 2020 or year 2030 significance thresholds of 4.6 and 2.8 MT CO2e, respectively. Also, this alternative would not be in conflict with regulatory plans adopted for the purpose of reducing GHG emissions. Overall, the GHG impacts would remain less-than-significant, the same as the proposed Project.

Hazards and Hazardous Materials

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project, including on areas where there may be hazardous conditions disturbed and transported during construction. Also, the alternative would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Hydrology and Water Quality

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities that could alter drainage patterns on the Project site, including in areas that may contain contaminants. The effect on existing stormwater infrastructure is conservatively considered the same with the Project, and the mitigation measure would continue to apply to this alternative. Also, the alternative would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The Reduced Buildout / Building Height Alternative would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. This alternative proposes the same uses as the Project, and would require the same amendments to the General Plan Map and Zoning Map to adopt and apply a "Commercial Office Professional /Technology (CP)" land use designation and "Commercial Park (CP)" zoning district, respectively, to the Project site. As with the Project, this alternative would be compatible with the mix of nearby industrial uses (e.g., rail, truck, port, building supply and the Graniterock concrete processing). This scenario assumes that the buildings and parking structure would be located on the site in the same way to provide some level of buffer between these surrounding uses and the new office campus. This alternative would not pose conflicts with other existing land use plans or policies. The impacts to land use and planning would be the same with this alternative as the Project.

Noise

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (with implementation of mitigation measures) construction noise impacts and reduced less-than-significant operational noise impacts compared to the Project. This determination considers that this alternative would construct about 67 percent of the building area proposed by the Project (788 ksf compared to 1.18 msf). This would not necessarily result in less construction noise levels than would occur with the Project; construction activities would be the same as with the Project, as would the standard construction noise regulations and practices.

However, the alternative could have a shorter construction duration, but the less-than-significant impact and the construction-period mitigation measures would conservatively still apply with this alternative. Less-than-significant impacts regarding ground bourne vibration also would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour vehicle trips (28 and 32 percent fewer), which would result in lower operational (traffic) noise compared to the proposed Project. The smaller development would also have reduced ground bourne vibration during its operations. Overall, the alternative would have less-than-significant operational noise impacts with no mitigation measures required, which is the same as with the proposed Project.

Population, Housing and Employment

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (no mitigation measures) population, housing and employment impacts compared to the Project. This alternative would develop less total building area than proposed by the Project (788 ksf compared to 1.18 msf), but would include the same land use mix as the proposed Project. Overall growth with this alternative would be slightly less than with the employment anticipated with the proposed Project (3,061 compared to 4,579, or 33 percent less).[9] Less employment growth largely results in reductions in other impacts (e.g., utility and public service demands). Also, like the Project, no aspect of this alternative would suggest result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people.

Public Services and Recreation

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (no mitigation measures) public services and recreation impacts compared to the Project. This alternative will generate fewer new employees than with the proposed Project (3,061 compared to 4,579, or 33 percent less). As a result, to the extent that employees generate demand for public services - specifically police, fire and emergency services, schools, libraries and parks, the reduced employment from this alternative would result in a reduction of the potential impacts to public services and recreation, although the overall less-than-significant impacts would be the same as with the proposed Project.

Utilities and Service Systems

The Reduced Buildout / Building Height Alternative would result in reduced less-than-significant (no mitigation measures) utilities and service services impacts compared to the Project. This alternative would develop less total building area than proposed by the Project (788 ksf compared to 1.18 msf). Also, this alternative will generate fewer new employees than with the proposed Project (3,061 compared to 4,579, or 33 percent less). As a result, this alternative will generate less overall demand for water and sewer identified for the Project, but would adhere to the same regulatory compliance regarding water quality and drainage effects. The impacts would be the same as with the proposed Project.

[9] 765,150 square feet of regular Office use at 250 employees per building area totals 3,061 employees (USGBC, 2008).

Transportation and Traffic

The Reduced Buildout / Building Height Alternative would result in reduced significant traffic impacts (with implementation of mitigation measures) compared to the Project. The development program is about 67 percent of the building area proposed by the Project (788 ksf compared to 1.18 msf). Therefore, this alternative would generate substantially fewer peak-hour vehicle trips (28 and 32 percent fewer) and daily vehicle trips (27 percent fewer), which would result in less traffic on area intersections and roadways compared to the proposed Project. Nonetheless, many of the adversely affected intersection and freeway conditions nearby, specifically within the Woodside Avenue (SR84) corridor, are substantially over-capacity under existing conditions that will continue under even relatively minimal new trips (as discussed in section 5.4, *Assumptions and Approach to the Comparative Analysis*, in this chapter). The alternative would also have the same less-than-significant (no mitigation measures required) transportation impacts regarding circulation, air traffic, transit, and pedestrian and bicycle considerations. Overall, the same significant and less-than-significant traffic and transportation impacts identified with the Project would continue to occur with this alternative, although the contribution of new traffic would be less than with the Project.

5.5.4 70/30 Office + Ancillary R&D Lab Alternative

Description

The 70/30 Office + Ancillary R&D Lab Alternative represents development that allows a mix of more square footage of regular Office use (70 percent of the overall development) combined with less R&D Lab use (30 percent of the overall development) than is allowed by the existing IR zoning designation. (The previously analyzed No Project - Existing Zoning Alternative [70/30 R&D Lab + Ancillary R&D Office] reflects the mix of uses consistent with the IR zoning.) This alternative is included in this analysis in response to the comments received during public scoping of this EIR and the City's request to consider a mixed use office / R&D scenario reflective of the mix being developed in the current local market (i.e., developments with a large portion of office use than R&D lab use).

As shown in Table 5-1, this alternative assumes total development of 1,179,748 square feet, comprised in four seven-story buildings (like the proposed Project). This alternative contains 801,323 total square feet (70 percent) of regular Office use and 343,425 total square feet (30 percent) of ancillary R&D Lab use, as well as a two-story 35,000 square-foot amenities building. Like the proposed Project, this alternative also includes two parking structures of three and five stories.[10]

[10] 27.08 acres equals 1,179,747 square feet of site area, and a 1.0 FAR is assumed, like the proposed Projects. Excluding the amenities buildings, 70 percent totals approximately 801,323 square feet of regular Office use, and 30 percent totals approximately 343,425 square feet of R&D Lab use.

Aesthetics

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation required) aesthetics impacts as the Project. As described above, this alternative would have the same physical development and configuration on the site as proposed with the Project. Because only part of the land use mix within the four main buildings would be different with this alternative, it would not change any aesthetics effects identified with the proposed Project. The aesthetics impacts would remain less than significant.

Air Quality

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) construction air quality impacts and the same less-than-significant operational air quality emission impacts as the Project. This determination considers that this alternative would construct the same total building area as proposed by the Project (1.18 msf), with the addition of R&D Lab uses. This means the same construction activity than would occur with the Project, which would therefore result in the same criteria air pollutant emissions during construction. The less-than-significant impact and the construction-period mitigation measures addressing criteria pollutants would still apply with this alternative. Also, the less-than-significant impacts regarding construction odors and TACS would be the same as with the Project.

Because of the different distribution of land uses with this alternative compared to the Project, the alternative would generate substantially fewer peak-hour vehicle trips (1 and 4 percent fewer), but slightly more daily vehicle trips (7 percent more) even though the total building area is the same as the Project. Therefore, this alternative would result similar operational emission compared to the proposed Project. All operational air quality impacts would remain less-than-significant, and no mitigation measures would be required, the same as the proposed Project.

Biological Resources

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. This alternative would involve generally the same buildings and configuration as proposed with the Project. The Project site is not located near any areas of existing sensitive habitat or wetlands, therefore neither the alternative nor the Project would involve construction or operations near such areas. All mitigation measures regarding potential impacts to nesting birds, roosting bats and avian collisions and protected trees would continue to apply to the alternative.

Cultural / Tribal Resources

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. This alternative would involve the same overall construction and excavation activities as the Project, which would require the same standard mitigation measures to address

the potential resource discovery of archaeological and paleontological resources and human remains. No historic resources exist that could be potentially affected.

Geology and Soils

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. This alternative would involve the same overall construction, excavation and earthmoving activities, and would be subject to the same geologic hazard conditions. As a result, this alternative would require adherence to the same regulatory requirements that ensure less-than-significant impacts.

Greenhouse Gases / Climate Change

The 70/30 Office + Ancillary R&D Lab Alternative would result in similar less-than-significant GHG emissions impacts as the Project. This determination is based on the slightly different peak-hour trips with this alternative compared to the Project (1 and 4 percent fewer) and slightly more daily vehicle trips (7 percent more). This alternative will generate approximately 12 percent less service population than the proposed Project (4,053 compared to 4,579 persons).

Considering the reduction in total daily vehicle trips, this alternative would also have lower total GHG emissions compared to the Project (9,636 compared to 10,538 MT CO_2e). Although still more than the significance threshold of 1,100 MT CO_2e annually, this alternative would similar annual GHG emissions per service population compared to the Project (2.4 compared to 2.3 MT CO_2e), which would not exceed the year 2020 or year 2030 significance thresholds of 4.6 and 2.8 MT CO_2e, respectively. Also, like the Project, this alternative would not be in conflict with regulatory plans adopted for the purpose of reducing GHG emissions. Overall, the GHG impacts would remain less-than-significant, the same as the proposed Project.

Hazards and Hazardous Materials

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. This alternative would involve the same overall construction, excavation and earthmoving activities as the Project, including on areas where there may be hazardous conditions disturbed and transported during construction. Also, the alternative would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Hydrology and Water Quality

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts as the Project. This alternative would involve the same overall construction, excavation and earthmoving activities that could alter drainage patterns on the Project site, including in areas that may contain contaminants. The effect on existing stormwater infrastructure is conservatively

considered the same with the Project, and the mitigation measure would continue to apply to this alternative. Also, the alternative would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. This alternative proposes development that requires approval of a zoning amendment since the amount of regular Office use exceeds that allowed by the existing IR zoning designation. Otherwise, the land uses in this alternative would be compatible with the mix of nearby industrial uses (e.g., rail, truck, port, building supply and the Graniterock concrete processing). This scenario assumes that the buildings and parking structure would be located on the site to provide some level of buffer between these surrounding uses and the new regular Office and R&D Lab campus. This alternative would not pose conflicts with other existing land use plans or policies. The impacts to land use and planning would be the same with this alternative for the Project.

Noise

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (with implementation of mitigation measures) construction noise impacts, and the same less-than-significant operational noise impacts, compared to the Project. This determination considers that this alternative would construct the same total building area as proposed by the Project (1.18 msf), with the addition of R&D Lab uses. This would result in the same construction activities, regulations and practices, and duration as with the proposed Project, and therefore the same resulting noise levels and duration. The less-than-significant impact and the construction-period mitigation measures would still apply with this alternative. Less-than-significant impacts regarding ground bourne vibration also would be the same as with the Project.

Although the amount of construction would be the same with this alternative, because of its different distribution of land uses, the alternative would generate slightly different peak-hour trips with this alternative compared to the Project (1 and 4 percent fewer) and slightly more daily vehicle trips (7 percent more), which would result in similar operational (traffic) noise compared to the proposed Project. Overall, the alternative would maintain less-than-significant operational noise impacts with no mitigation measures required, which is the same as with the proposed Project.

Population, Housing and Employment

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation measures) population, housing and employment impacts as the Project. This alternative would develop the same total building area as proposed by the Project (1.18 msf), with the addition of R&D Lab uses combined with regular Office use. Because the R&D Lab land use generally has fewer employees per floor area than regular Office use, this alternative would have less employment than the proposed Project (4,053 compared to 4,579, or

12 percent less), even though the total building is the same for the alternative and the Project.[11] The reduced number of employees compared to the proposed Project is negligible, as will be the reduced employee-generated demands (e.g., utility and public service demands). Also, like the Project, no aspect of this alternative would result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people.

Public Services and Recreation

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation measures) public services and recreation impacts as the Project. This alternative will generate fewer new employees than the proposed Project (4,053 compared to 4,579, or 12 percent less). As a result, to the extent that employees generate demand for public services, specifically police, fire and emergency services, schools, libraries and parks, the reduced demand for these public services and recreation would also be less than the Project. The impacts would be the same less-than-significant effects as with the proposed Project.

Utilities and Service Systems

The 70/30 Office + Ancillary R&D Lab Alternative would result in the same less-than-significant (no mitigation measures) utilities and public services impacts as the Project. This alternative would develop the same total building area as proposed by the Project (1.18 msf), but will generate fewer new employees than the proposed Project (4,053 compared to 4,579, or 12 percent more). As a result, this alternative will also generate less demand for water, sewer and other employee-generated demands on utilities and service systems. This alternative would adhere to the same regulatory compliance regarding water quality and drainage effects. The impacts would be the same as with the proposed Project.

Transportation and Traffic

The 70/30 Office + Ancillary R&D Lab Alternative would result in reduced significant traffic impacts (with implementation of mitigation measures) compared to the Project. This alternative would develop the same total building area as proposed by the Project (1.18 msf). However, because of the different distribution of land uses with this alternative compared to the Project — specifically the addition of R&D Lab uses with the regular Office use — the alternative would generate substantially fewer peak-hour vehicle trips (1 and 4 percent fewer) and slightly more daily vehicle trips (7 percent more), even though the total building area is not changed. Nonetheless, many of the adversely affected intersection and freeway conditions nearby are substantially over-capacity under existing conditions that will continue under even relatively minimal new trips, specifically within the Woodside Avenue (SR84) corridor (as discussed in section 5.4, *Assumptions and Approach to the Comparative Analysis*, in this chapter). The alternative would also have the same less-than-significant (no mitigation measures required) transportation impacts regarding circulation, air traffic, transit, and pedestrian and bicycle considerations. Overall, generally the same significant and less-than-significant traffic and

[11] 801,323 square feet of regular Office use at 250 employees per building area (3,206 employees), plus 343,425 square feet of ancillary R&D Lab use at 405 employees per building area (848 employees), totals 4,053 employees (USGBC, 2008).

transportation impacts identified with the Project would continue to occur with this alternative, although the contribution of new traffic would be less than with the Project.

5.5.5 Alternative Site Location

Description

This alternative represents development of the proposed Project at a location within Redwood City other than proposed Project site. The comparative analysis assumes that the offsite location would be within the Seaport Boulevard corridor given the lack of feasible sites elsewhere in the City.

Section 15126.6 of the CEQA Guidelines indicates that the EIR alternatives evaluation may include alternatives to a project's proposed location. CEQA Guidelines section 15126.6(f)(2)(A) states, "[T]he key question and first step in the analysis 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 of the significant effects of the project need to be considered for inclusion in the EIR." (Section 5.2 of this chapter lists the significant and unavoidable impacts of the proposed Project.) CEQA Guidelines section 15126(f)(2) also indicates that alternatives that are remote or speculative, or that have effects that cannot be reasonably predicted, need not be considered.

Development of 1.18 msf of commercial office use at a different location in or near Redwood City would likely result in similar impacts on other neighborhoods as those identified with the proposed Project, as described in more detail below. The Project site is approximately 27.08 acres adjacent to U.S. 101 and its on- /off-ramps. The area surrounding the Project site contains a mix of light industrial, heavy industrial, public facilities, port-related and construction-related commercial uses that are not expected to substantially transition, according to the General Plan. Given the land area needed to accommodate the proposed development program, possible alternative site locations within the City could exist along the Seaport Boulevard corridor or Seaport Centre to the north of the Project site, as well as in Pacific Shores. However, site control of a viable alternative site is a key consideration. The Project sponsor, a private developer, controls the proposed Project site and does not own property in any of the aforementioned nearby areas or elsewhere in the City that could accommodate the 1.18 msf development.

The overall environmental setting along the Seaport Boulevard corridor, Seaport Centre and Pacific Shores is not substantially different from the Project site.

Aesthetics

The Alternative Site Location would result in the same less-than-significant (no mitigation required) aesthetics impacts as the Project. The alternative site locations near the Project site have the same overall existing aesthetics setting. The topography of the area is generally flat, with public views of scenic vistas or resources mainly available from elevated locations in the southern

and western hillside neighborhoods of the City. The impacts with development of a nearby alternative site location would be the same as the Project.

Air Quality

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) construction air quality impacts and the same less-than-significant operational air quality emission impacts as the Project. The same construction and development program would occur on any of the nearby alternative site locations. Also, the alternative site would have generally the same land area as the 27.08-acre Project site. Therefore, development of a nearby alternative site location would have the same construction and operational air quality impacts as the Project.

Biological Resources

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. The nearby alternative site locations may be closer to sensitive natural habitat compared to the proposed Project site, but not immediately adjacent to those resources and warrant more impacts and mitigation measures. The impacts of developing a nearby alternative site location would be the same as the Project.

Cultural / Tribal Resources

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. Cultural resources are generally geographically specific; therefore, consideration of an alternative site could change the potential for environmental effects. As discussed in the Project analysis in section 4.4, Cultural Resources and Tribal Resources, in Chapter 4 of this Draft EIR, no recorded prehistoric archaeological sites are located in or adjacent to the Project site. The nearest prehistoric sites being more than one mile to the east (across Seaport Boulevard) and south (across Highway 101), and for a several reasons discussed in section 4.4, prehistoric archaeological potential of the Project site is considered low. Similarly, there are no recorded historic-era architectural resources within the Project site or nearby. Therefore, development of a nearby alternative site would result in the same less-than-significant impacts (with mitigation measures to address the inadvertently discovery of cultural and tribal cultural resource and human remains as the Project.

Geology and Soils

The Alternative Site Location would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. Development of the Project on a nearby alternative site location would involve similar overall construction, excavation and earthmoving activities as the Project and would be subject to the same geologic hazard conditions. The impacts of developing a nearby alternative site would be the same as the Project.

Greenhouse Gases / Climate Change

The Alternative Site Location would result in similar less-than-significant GHG emissions impacts as the Project. The same construction and development program would occur on any of the nearby alternative site locations. Therefore, the same traffic would be generated from the development, and the same GHG emissions would be generated from traffic and all other sources. The service population would also be the same. The impacts of developing a nearby alternative site location would be the same as the Project.

Hazards and Hazardous Materials

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. Development of the Project on a nearby alternative site location could include areas where there may be hazardous conditions disturbed and transported during construction. Also, the nearby alternative sites would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations. The impact of development as a nearby alternative site location would be the same as the Project.

Hydrology and Water Quality

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts as the Project. Development of the Project on a nearby alternative site location would have similar effects on stormwater infrastructure, and conservatively, the mitigation measure would continue to apply. It is assumed that the new, extended or enlarged utility lines or similar that the proposed Project requires may also be needed at a nearby alternative site given its proximity to the Oddstad Pump Station. It is also assumed that an alternative site location could require new mains to connect to the Seaport Boulevard Pump Station like the proposed Project. The mitigation measure to address the insufficiency of the existing infrastructure at the pump station to convey runoff from the site during a 100-year storm event is conservatively assumed to still apply; this insufficiency could be an issue due to runoff elsewhere in the area. The development would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The Alternative Site Location would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. Development on a nearby alternative site location would require the similar amendments to the General Plan Map and Zoning Map to adopt and apply a “Commercial Office Professional /Technology (CP)” land use designation and “Commercial Park (CP)” zoning district, respectively, to the development site. Developing on a nearby site would continue to be compatible with the mix of nearby industrial uses (e.g., rail, truck, port, building supply and the Graniterock concrete processing), with buildings and parking structures located on the site provide some level of buffer between these surrounding uses and the

new office campus. Development at Seaport Boulevard corridor, Seaport Centre or Pacific Shores is not considered to conflict with other existing land use plans or policies. The impacts of development as a nearby alternative site location would be the same as the Project.

Noise

The Alternative Site Location would result in the same less-than-significant (with implementation of mitigation measures) construction and operational noise impacts as the Project. The same construction and development program would occur on a nearby alternative site location. Therefore, the same traffic would be generated from the development, and the same construction and operational noise emissions would be generated from traffic and all other sources. The impacts of development at a nearby alternative site location would be the same as the Project.

Population, Housing and Employment

The Alternative Site Location would result in the same less-than-significant (no mitigation measures) population, housing and employment impacts the Project. The same development program would be developed on a nearby alternative site location. Therefore, the same employment growth and resulting effects to other impacts (e.g., utility and public service demands) would occur. Also, like the Project, no aspect of this alternative would result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people. The impacts resulting at a nearby alternative site location would be the same as the Project.

Public Services and Recreation

The Alternative Site Location would result in the same less-than-significant (no mitigation measures) public services and recreation impacts as the Project. The same development program would be developed on a nearby alternative site location, generating the same employment population on the site. As a result, the demand generates for public services - specifically police, fire and emergency services, schools, libraries and parks, would be the same as the Project. The impacts resulting at a nearby alternative site location would be the same as the Project.

Utilities and Service Systems

The Alternative Site Location would result in the same less-than-significant (no mitigation measures) utilities and service system impacts as the Project. Development of the Project on a nearby alternative site location would have similar effects on public utility infrastructure. It is assumed that the new, extended or enlarged utility lines or similar that the proposed Project requires may also be needed at a nearby alternative site given its proximity to the Seaport Pump Station. It is conservatively assumed that the improvements to the stormwater mains in Seaport Boulevard will also apply to the Project, given the proximity of Seaport to the potential alternative site locations. The impacts resulting at a nearby alternative site location would be the same as the Project.

Transportation and Traffic

The Alternative Site Location would result in the same significant and unavoidable transportation and traffic impacts as the Project. Development of the Project in a nearby alternative location would have similar significant and unavoidable effects on the area intersection and roadway network. Similar environmental conditions as the Project exists since the nearby alternative sites are near Woodside Road (SR84), Highway 101, and potentially the proposed Blomquist extension over Redwood Creek like the Project. All mitigation measures identified with the Project are assumed to apply. The impacts of the Project being developed at a nearby alternative site location would be the same as the Project.

5.5.6 On-site Public Amenities

Description

The On-site Public Amenities Alternative responds to comments received during scoping of this EIR. Neither the City nor the Project applicant has put forth a proposal for development of a sports field facility on the proposed Project site. The City developed the following theoretical scenario that would accommodate one to four adult soccer fields on one to four acres of the Project site. As shown in Table 5-1, this alternative would develop three of the four office buildings proposed with the Project, and the amenities building would introduce ancillary child care for Project employees. Total floor area would be approximately 26 percent less than the proposed Project (882 ksf compared to 1.18 msf). The basic access and configuration of development on the site would otherwise be the same as with the proposed Project, and given the reduced development, this alternative assumes that the taller of the two parking structures (Parking Structure A on the west edge of the site) would be reduced from five to three stories. The soccer fields would be synthetic turf underlain by composite gravel but would not include spectator seating or other support facilities. However, the fields would include minimal, as-needed pole lighting for nighttime use, in addition to the permanent nighttime and security lighting that would be provided for the entire office campus. Like the Reduced Buildout / Building Height alternative previously discussed in this analysis, this alternative would result in reduced environmental effects that are influenced by the change in the site Plan. This alternative introduces outdoor recreational use and ancillary child care; both are sensitive receptors in terms of exposure to TACs, and the child care use is considered a noise-sensitive use).

Aesthetics

The Onsite Public Amenities Alternative would result in a new less-than-significant (with mitigation) aesthetics impacts compared to the Project. Three of the four proposed office buildings would be developed with this alternative, and Parking Structure A (proposed on the west edge of the site) would be reduced from five to three stories. This analysis does not assume that relatively lower building height or fewer structures built necessarily means a less adverse environmental effect than identified with the Project. In particular, this alternative would not adversely affect the existing visual character or visual quality of the area any more than the

proposed Project would, since the existing site surroundings are a mix of industrial, office and port-related activities. The reduced overall development and building heights with this alternative would have reduced shadows, but the new as-needed pole lighting associated with the soccer fields could temporarily increase nighttime glare that could potentially impair driver visibility on Highway 101. Conservatively, a new mitigation measure would be identified to ensure light is directed and shielded to avoided potential adverse lighting or glare effects to drivers on nearby roads, particularly Highway 101. The impacts would remain less than significant like the Project, with the addition of a new mitigation measure.

Air Quality

The Onsite Public Amenities Alternative would result in a potentially new less-than-significant (with implementation of mitigation measures) impacts regarding exposure of sensitive receptors to operational TACs; reduced less-than-significant (with implementation of mitigation measures) construction air quality impacts; and reduced less-than-significant operational air quality emission impacts, compared to the Project. This determination considers that this alternative would allow the construction of about 74 percent of the building area proposed by the Project (882 ksf compared to 1.18 msf). This would result in slightly less construction activity than would occur with the Project, which would therefore result in relatively fewer criteria air pollutant emissions during construction. However, the less-than-significant impact and the construction-period mitigation measures addressing criteria pollutants would conservatively still apply with this alternative. Less-than-significant impacts regarding construction odors and TACS also would be the same as with the Project.

This alternative would also generate comparatively fewer peak-hour trips (18 and 16 percent fewer) and daily vehicle trips (14 percent fewer) than the Project. This would result in lower operational emissions compared to the proposed Project. All operational criteria pollutant air quality impacts would remain less-than-significant, and no mitigation measures would be required as the proposed Project.

This alternative adds two sensitive receptors not included with the proposed Project. Sensitive receptors are places with people who are considered to be more sensitive than others to air pollutants since they greater-than-average sensitivity. The inmates housed within the Maple Street Correctional Center are recognized as sensitive receptors in the analysis in section 4.3, *Air Quality,* in Chapter 4 of this Draft EIR; however, no adverse air quality effects in terms of exposure to TACs was identified. Day care centers, which this alternative would include as an ancillary use (limited in size and supporting employees) in the amenities building, is considered a sensitive receptor as it involves children who are more sensitive to poor air quality than the general public. Recreation facilities, such as soccer fields, are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with some forms of recreation places a high demand on the human respiratory system.

The primary sources of TACs identified within 1,000 feet of the Project site include the exhaust from diesel engines trucks in the area, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations emissions from vehicles

traveling on Highway 101, on-site generators at the City Police Station and Maple Street Correctional Center, and dust and particulates emissions associated with operation of the Graniterock facility. California Air Resources Board (CARB) guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors.

The proposed amenities building with the ancillary day care would be located approximately 480 feet north of the Highway 101 and 330 feet west of the existing railroad tracks along Old Seaport Road immediately east of the Project site; one of the seven-story office buildings is proposed between the tracks and the amenities buildings. The proposed soccer fields would likely be developed approximately 480 feet north of the Highway 101 and 300 feet east of the existing railroad spur to Graniterock; the three-story Parking Structure A is proposed between where the railroad spur and where the soccer fields might occur.[12]

Given these distances compared to the recommended minimum buffer of 500 feet from the edge of freeways to sensitive receptors, the TAC exposure impact with this alternative is considered potentially significant, although a health risk screening analysis was not conducted not required for this alternatives assessment.

New mitigation measures would be identified that could require preparation of a HRA to show if the health risk exceeds acceptable levels, or the Project would otherwise incorporate appropriate measures into the Project design to reduce the potential health risk due to exposure to TACs would be required with this alternative. Specific example measures could include, but not be limited to

- installation of air filtration devices rated MERV-13 or higher to reduce cancer risks and Particulate Matter (PM) exposure at the proposed child care center, since it would be located within 500 feet of air pollution;
- implementation plan and ongoing maintenance plan for the building's HVAC air filtration system;
- locating sensitive receptors and operable windows, balconies, and building air intakes as far away as feasible from the source(s) of air pollution and truck activity areas;
- planting suitable trees and/or vegetation between sensitive receptors and pollution source; and/or
- use of measures to reduced emissions from diesel generators and/or diesel trucks; and establishing an operational truck route program to avoid sensitive receptors in the Project.

Appropriate implementation of some or all of the mitigation measures required for this alternative is anticipated to reduce the new TAC exposure impact to less than significant.

[12] Distances estimated are the nearest point of proposed amenities building and proposed Office Building B4 from the US 101 and railroad rights-of-way, based on Figure 3-5, Proposed Illustrative Site Plan, in Chapter 3 of this Draft EIR.

Biological Resources

The Onsite Public Amenities Alternative would result in the same less-than-significant (with implementation of mitigation measures) biological resources impacts as the Project. This alternative would involve generally the same buildings as proposed with the Project, although the structures would likely be lower in height. The Project site is not located near any areas of existing sensitive habitat or wetlands, therefore neither the alternative nor the Project would involve construction or operations near such areas. However, all mitigation measures to address potential impacts to nesting birds, roosting bats and avian collisions and protected trees would continue to apply to the alternative.

Cultural / Tribal Resources

The Onsite Public Amenities Alternative would result in the same less-than-significant (with implementation of mitigation measures) cultural and tribal resources impacts as the Project. This alternative would involve similar overall construction and excavation activities as the Project, which would require the same standard mitigation measures to address the potential resource discovery of archaeological and paleontological resources and human remains. No historic resources exist that could be potentially affected.

Geology and Soils

The Onsite Public Amenities Alternative would result in the same less-than-significant (no mitigation measures) geology and soils impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project and would be subject to the same geologic hazard conditions. As a result, this alternative would require adherence to the same regulatory requirements that ensure less-than-significant impacts.

Greenhouse Gases / Climate Change

The Onsite Public Amenities Alternative would result in similar less-than-significant GHG emissions impacts as the Project. This determination is based on the fewer peak-hour vehicle trips (18 and 16 percent fewer) and daily vehicle trips (14 percent fewer) associated with this alternative compared to the Project, since mobile emissions are the most substantial GHG emissions source. This determination also considers this alternative's lower service population associated with the reduced office development, which is approximately 25 percent less than with the proposed Project (3,423 compared to 4,579 persons).

Considering the reduction in total daily vehicle trips, this alternative would also have lower total GHG emissions compared to the Project (7,438 compared to 10,538 MT CO2e). However, it would have nearly the same total annual GHG emissions per service population compared to the Project (2.2 compared to 2.3 MT CO2e), which would not exceed the year 2020 or year 2030 significance thresholds of 4.6 and 2.8 MT CO2e, respectively. Also, this alternative would not be in conflict with regulatory plans adopted for the purpose of reducing GHG emissions. Overall, the GHG impacts would remain less-than-significant, the same as the proposed Project.

Hazards and Hazardous Materials

The Onsite Public Amenities Alternative would result in the same less-than-significant (with implementation of mitigation measures) hazards and hazardous materials impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities as the Project, including in areas where hazardous materials may be disturbed and transported during construction. Also, the alternative would be subject to the same potential hazards risk and conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Hydrology and Water Quality

The Onsite Public Amenities Alternative would result in reduced less-than-significant (with implementation of mitigation measures) hydrology and water quality impacts as the Project. This alternative would involve similar overall construction, excavation and earthmoving activities that could alter drainage patterns on the Project site, including in areas that may contain contaminants. The proposed soccer fields and one fewer office building increases the pervious area on the site, which may actually reduce the impacts on water quality. The effect on existing stormwater infrastructure is conservatively considered the same with the Project, and the mitigation measure would continue to apply to this alternative. Also, the alternative would be subject to the same flood hazard conditions as the Project and would require adherence to the same regulatory requirements that ensure less-than-significant impacts during construction and operations.

Land Use and Planning

The Onsite Public Amenities Alternative would result in the same less-than-significant (no mitigation required) land use and planning impacts as the Project. This alternative proposes the same primary land uses as the Project, and would require the same amendments to the General Plan Map and Zoning Map to adopt and apply a "Commercial Office Professional /Technology (CP)" land use designation and "Commercial Park (CP)" zoning district, respectively, to the Project site. As with the Project, this alternative would be compatible with the mix of nearby industrial uses (e.g., rail, truck, port, building supply and the Graniterock concrete processing). This scenario assumes that the buildings and parking structures would be located on the site in the same way to provide some level of buffer between the surrounding uses and the new office campus, except that the soccer fields would be located where Office Building B4 was proposed along Blomquist. This alternative would not pose conflicts with other existing land use plans or policies. The impacts to land use and planning would be the same with this alternative as the Project.

Noise

The Onsite Public Amenities Alternative would result in a potentially new less-than-significant (with implementation of mitigation measures) impact regarding land use noise compatibility; reduced less-than-significant (with implementation of mitigation measures) construction noise impacts; and reduced less-than-significant operational noise impacts compared to the Project.

This determination considers that this alternative would involve the construction of about 74 percent of the building area proposed by the Project (882 ksf compared to 1.18 msf). While the construction duration may be less, the construction activities and standard construction noise regulations and practices would be the same as with the Project. The less-than-significant impact and the construction-period mitigation measures would conservatively still apply with this alternative. Less-than-significant impacts regarding ground bourne vibration also would be the same as with the Project.

This alternative would also generate substantially fewer peak-hour trips (18 and 16 percent fewer) than the Project, which would result in lower operational (traffic) noise compared to the proposed Project. The smaller development would also have reduced ground bourne vibration during its operation. This alternative would have less-than-significant operational noise impacts with no mitigation measures required, same as the proposed Project.

The proposed outdoor soccer fields (Open Space/Recreation) proposed with this alternative are considered relatively noise tolerant by the General Plan Noise Guidelines in Table 4.10-1 in section 4.10, *Nois*e, in Chapter 4 of this Draft EIR). Noise levels of up to 75 CNEL are considered normally acceptable for such uses, and the area where the soccer fields are proposed have an ambient noise level of generally less than 70 DNL, which is consider "normally acceptable." (City of Redwood City, 2014). The impact would be less than significant.

However, the proposed child care use with this alternative is considered a noise-sensitive use, since it involves rest and recovery, relaxation and concentration, and increased noise levels tend to disrupt such activities (as discussed in the *Environmental Setting* in Section 4.10 in Chapter 4). The ambient noise level where the amenities building within which the ancillary day care center use (Public Facilities/Schools) will be located is proposed is 70 DNL (City of Redwood City, 2014). The General Plan Noise Guidelines in Table 4.10-1 in this Draft EIR indicate that an ambient noise environment between 65 to 75 DNL is "conditionally acceptable" exposure for the day care use. "Conditionally acceptable" means that new development should be undertaken only after a detailed analysis of noise reduction requirements is made and incorporated into the project.

The amenities building where the child care use will be constructed in adherence to all required sound-rated assembles and noise insulation standards applicable to the proposed building use to meet all commercial building requirements. A mitigation measure in accordance with the guidelines is identified to direct the Project sponsor to prepare a detailed analysis of noise reduction requirements and incorporate those requirements into the structure, if further measures are required after adherence to all code requirements. The combination of regulatory requirements and the mitigation measure would reduce the potential land use noise conflict impact associated with the proposed ancillary day care use to less than significant.

Overall, this alternative will have reduced construction and operational (traffic) noise impacts compared to the Project, and will result in a new impact mitigable to less than significant regarding land use noise compatibility.

Population, Housing and Employment

The Onsite Public Amenities Alternative would result in reduced less-than-significant (no mitigation measures) population, housing and employment impacts compared to the Project. This determination considers that this alternative would allow the construction of about 74 percent of the building area proposed by the Project (882 ksf compared to 1.18 msf), but would include the same primary land uses as the proposed Project. Overall growth with this alternative would be slightly less than with the employment anticipated with the proposed Project (3,423 compared to 4,579 persons, or 25 percent less).[13] Less employment growth largely results in reductions in other impacts (e.g., utility and public service demands). Also, like the Project, no aspect of this alternative would suggest result in undue growth associated with infrastructure improvements, and there would be no displacement of housing or people.

Public Services and Recreation

The Onsite Public Amenities Alternative would result in reduced less-than-significant (no mitigation measures) public services and recreation impacts compared to the Project. This alternative will generate fewer new employees than the proposed Project (3,423 compared to 4,579 persons, or 25 percent less). As a result, to the extent that employees generate demand for public services - specifically police, fire and emergency services, schools, libraries and parks, the reduced employment from this alternative would result in a reduction of the potential impacts to public services and recreation. This alternative would introduce four adult soccer fields as new publically-accessible recreational facilities, the construction of which would not result in adverse physical effects on of the environment. Potential effects would be associated with the movement of earth and stormwater during construction, as well as construction noise and emissions — all of which are identified and could be mitigated to less than significant, like the Project. Overall, the less-than-significant public services and recreation impacts would be less severe than the proposed Project.

Utilities and Service Systems

The Onsite Public Amenities Alternative would result in reduced less-than-significant (no mitigation measures) utilities and service services impacts compared to the Project. This alternative would develop 74 percent less building area than proposed by the Project (882 ksf compared to 1.18 msf). Moreover, adding four new adult soccer fields and one fewer office building increases the pervious area on the site, which may actually reduce the impacts on stormwater quality and utilities. Also, this alternative will generate fewer new employees than the proposed Project (3,423 compared to 4,579 persons, or 25 percent less). As a result, this alternative will generate less overall demand for water and sewer identified for the Project, but would adhere to the same regulatory compliance regarding water quality and drainage effects. The impacts would be the less severe than the proposed Project.

[13] 855,829 square feet of regular Office use at 250 employees per building area totals 3,423 employees (USGBC, 2008).

Transportation and Traffic

The Onsite Public Amenities Alternative would result in reduced significant traffic impacts (with implementation of mitigation measures) compared to the Project. The development program is about 74 percent of the building area proposed by the Project (882 ksf compared to 1.18 msf). Therefore, this alternative would generate fewer peak-hour vehicle trips (18 and 16 percent fewer) and daily vehicle trips (14 percent fewer), which would result in less traffic on area intersections and roadways compared to the proposed Project. (18 and 16 percent fewer) and daily vehicle trips (14 percent fewer), which would result in less traffic on area intersections and roadways compared to the proposed Project. Reduced significant and unavoidable traffic impacts could result, but not to the level of less-than-significance. As previously discussed, any level of the project would contribute trips specifically within the Woodside Avenue (SR84) corridor. Therefore, no level of reduced project would be without significant impacts. This alternative would also have the same less-than-significant (no mitigation measures required) transportation impacts regarding circulation, air traffic, transit, and pedestrian and bicycle considerations, although the contribution of new traffic would be less than with the Project.

5.6 Alternatives Considered but Not Analyzed in Detail in this EIR

5.6.1 CEQA Guidance

CEQA Guidelines Section 15126.6(a) and related case law hold that alternatives that are not reasonable or considered infeasible need not be discussed at length; alternatives that do not offer substantial environmental advantages over the project can be rejected from consideration; and alternatives that do not accomplish most of the basic objectives of the project can be excluded from detailed analysis. As discussed above in Section 5.3, *Alternatives Selected for Consideration*, a range of alternatives was selected for analysis in this EIR that consider lesser and greater densities and alternative land uses mixes compared to the proposed Project. The set of alternatives analyzed in this chapter are considered by the City to satisfy a "reasonable range" of alternatives to the Project. No additional alternatives are considered in this EIR (CEQA Guidelines Section 15126.6[a]).[14]

5.6.2 No Development Scenario

Comments received during public scoping for this EIR indicated that this document should consider a scenario in which no changes would occur to the Project site: a No Development scenario. Such a scenario is not considered likely, since the Project sponsor has secured

[14] 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.

ownership of, and submitted to the City a development proposal for, the Project site and development is allowed under the existing General Plan and zoning designations. However, the intent of exploring this theoretic scenario is to identify existing conditions that would remain on the site if its redevelopment did not proceed. This discussion is provided for informational purposes only. Existing conditions of the Project site are described in sections 4.1 through 4.14 in Chapter 4 of this Draft EIR. Redevelopment of the site could improve certain adverse conditions on the property and include beneficial components that would not otherwise occur. These include the following:

- Areas within the Project site have been identified to have contaminants of potential concern. However, whether the Project is developed or not, the property owner of the Project site is required to remediate the site conditions, pursuant to a Draft Remedial Action Workplan (RAW) that has been prepared for the site. Therefore, these existing conditions will not expand and adversely affect stormwater that flows to the Bay under the No Development scenario.
- Several mature trees considered to have a low suitability for preservation exist on the Project site. With redevelopment, these trees will be replaced with trees that are healthy and structurally stable.
- While the Project area has existing pedestrian and bicycle facilities on Blomquist Street and Seaport Boulevard, with redevelopment, new and improved pedestrian and bicycle connections will be implemented between the Project site and Downtown Redwood City.
- Redevelopment would likely include stormwater improvements, such as bioretention/infiltration areas and additional pervious surfaces that may improve drainage and stormwater quality conditions.
- Redevelopment of the site would likely involve the relocation of all overhead utility lines underground and remove associated poles both within the Project site and along the Project frontage.

Overall, these improvements would not occur with the scenario in which the Project site would not be redeveloped.

5.7 Environmentally Superior Alternative

As previously discussed in section 5.2, CEQA Guidelines require that the EIR identify an environmentally superior alternative (CEQA Guidelines, Section 15126.6), which is the CEQA alternative that reduces or avoids the environmental impacts identified with the Project to the greatest extent. The environmentally superior alternative is determined based on the summary of key characteristics of each alternative in Table 5-1, the comparative analysis in section 5.5, and the summary of the relative impacts across the alternatives in Table 5-2.

5.7.1 No Project Alternatives

The No Project – Existing Zoning Alternative (70/30 R&D Lab + Ancillary R&D Office) would be the environmental superior alternative, even though at 825 ksf, it would not development the least total square footage of development (the Reduced Building and Building Height Alternative

would develop the least development, 788 ksf). The No Project – Existing Zoning Alternative would also generate the fewest AM (809) and PM (881) peak-hour trips and fewest daily trips (5,959) and total GHG emissions (6,745) relative to the proposed Project and other alternatives, as shown in Table 5-1. However, the No Project – General Plan Alternative would result in the least service population ratio (1,911) (and consequently the highest GHG emissions per service population annually, 4.2 MT CO2e).

CEQA section 15126.6[e][2] stipulates that, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Therefore, an additional alternative is identified below.

5.7.2 Reduced Buildout and Building Height Alternative

The Reduced Buildout and Building Height Alternative is the environmentally superior alternative, aside from the No Project alternatives, of the alternatives analyzed in this EIR.

Relative Traffic Impacts (SUs)

As described in section 5.2, the only significant and unavoidable impacts identified with the proposed Project are traffic impacts to intersection operations and freeway conditions. Therefore, the ability for an alternative to reduce peak-hour vehicle trips is a key consideration in identifying the environmental superior alternative. As shown in Table 5-1, of the development alternatives, the Reduced Buildout and Building Height Alternative would generate the fewest AM (809) and PM (881) peak-hour trips and fewest daily trips (5,959) relative to the proposed Project, resulting in the least impactful significant and unavoidable traffic impact.

Relative Other Impacts

Although a significant and unavoidable impact will continue to occur with the Reduced Buildout and Building Height Alternative, it is also environmentally superior because it would:

- Generate the fewest number of peak-hour and daily vehicle trips, and therefore reduce the less-than-significant operational air quality and noise impacts to the greatest extent compared to the proposed Project and the other development alternatives (after the No Project alternatives, discussed below).
- Generate the fewest total GHG emissions (6,905 MT CO2e) (after the No Project – Existing Zoning Alternative, discussed below).
- Develop the smallest project, in terms of total square footage (788,150 square feet), and would therefore reduce the degree of most environmental effects pertaining to the physical space occupied by the development.
- Generate the fewest number of employees (3,061) (after the No Project Alternatives, discussed below), and therefore reduce the degree of impacts and service demands generated by project occupants.

Attainment of the Project Objectives

Discussed in section 5.2 of this chapter, the selected alternatives consider consistency with the Project Objectives. The Reduced Buildout and Building Height Alternative would best attain all of the objectives, since it mirrors the proposed Project, only reduced by 33 percent.

- Develop a lively working environment with office uses within the Inner Harbor to promote innovation and creativity.
- Orient development toward internal open space and allow public access to accommodate bicycle and pedestrian linkages through the Project site toward future public open space near the water. Respect views of the water and hills by maintaining and enhancing key view corridors. Create a day/night environment that is safe and enjoyable for residents, employees, and visitors.
- Cluster development to provide adequate buffer to adjacent industrial uses.
- Provide publically-accessible recreation and open space amenities within the Project site, in support of the citywide adopted parkland standard.
- Insist upon quality architecture, streetscapes, public place improvements, and other "placemaking" features.
- Provide for new and improved pedestrian and bicycle connections between the Project site and Downtown Redwood City.
- Plan for land use and circulation compatibility with adjacent institutional, industrial, and port-dependent uses, through effective building placement, orientation, and screening.

CHAPTER 6
Impact Overview and Growth Inducement

Consistent with the CEQA *Guidelines* Section 15126.2, this section summarizes the growth-inducing effects, significant irreversible environmental changes, significant unavoidable environmental effects, and effects found to be less than significant associated with development of the Harbor View Project.

6.1 Growth-Inducing Impacts

This section addresses the ways that the proposed Project "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (Section 15126.2(d) of the CEQA Guidelines). This section summarizes topics and impacts also addressed in Section 4.11 *Population, Housing and Employment*, which provides the context for evaluating growth-inducing impacts.

6.1.1 Growth at the Project Site

Development of the new office complex would result in direct growth of up to 4,579 new employees on the Project site. That is approximately 2.5 times (2,851 more employees) than that envisioned theoretically on the Project site under the existing General Plan. The Project would involve associated amendments to the General Plan and Zoning Ordinance to accommodate the proposed level of development that would generate its substantial increase in employment growth compared to that previously envisioned.

6.1.2 Growth Outside the Project Site

The proposed Project will involve the relocation of existing water lines, and sanitary sewer pipe (and construction of facilities or payment of mitigation fees including but not limited to Inflow/Infiltration and East 101 Fair Share Infrastructure Plan contributions toward overall system improvements); the extension of pipes to the existing recycled water system; pump station upgrades; and the relocation of existing stormwater drains.

Local planning forecasts, regional development forecasts, and travel demand models, as well as the City's ongoing capital improvement program for the renewal of aging infrastructure, including area roadways, have considered redevelopment on and around the Project site. For example, the nearby extension of Blomquist Street to Redwood Creek by the development at 1548 Maple Street (west-northwest of Maple Street) to connect with the Project's proposed construction of a Blomquist Bridge new bridge crossing over Redwood Creek, as a community benefit are

improvements that are part of the City's Transportation Impact Mitigation Fee Program (TIF) and *East 101 Fair Share Infrastructure Area* and necessary to serve cumulative growth.

6.1.3 Secondary and Temporary Effects of Growth

Development of the proposed Project is not likely to induce secondary growth beyond the Project site beyond that envisioned in the General Plan. Other areas near the Project site, primarily across Highway 101 toward Downtown, are already developed with a mix of existing services that would also service Project employees. Construction of the Project would occur over approximately two years and would generate temporary construction employment for that relatively limited duration.

6.1.4 Effect on Growth Pressures Elsewhere in the Region

From a regional perspective, the proposed Project would not affect the distribution and location of growth within the Bay Area region. Growth from the Project in Redwood City, which is located in the central part of the region, is not expected to induce or relieve potential growth pressure in other areas. The Project would not constitute substantial employment growth, from a regional standpoint (based on the comparative growth associated with the Project compared to citywide growth projections, as summarized in Tables 4.11-1 and 4.11-2 in Section 4.11, *Population, Housing and Employment*). So while development of the Project could capture activity that would otherwise locate elsewhere in the Bay Area, it is not likely to have a noticeable effect regionally. The Project would involve a 1.2 million square foot commercial office development, which could reduce growth pressures that may exist in the region for that type and scale of land use that is predominant in Redwood City and nearby jurisdictions. The Project does not include residential uses, which could theoretically off-set the existing regional housing demand, particularly at locations near employment and transit.

6.1.5 Summary

Overall, the effects of adoption and development of the Project on growth would not be considered substantial and adverse.

6.2 Signifiant Irreversible Environmental Effects

An EIR must identify any significant irreversible environmental changes that could result from the proposed Project. These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified (CEQA Guidelines §15126.2(c)). The CEQA Guidelines identify three distinct categories of significant irreversible changes: (1) changes in land use that would commit future generations; (2) irreversible changes from environmental actions; and (3) consumption of non-renewable resources.

6.2.1 Changes in Land Use Which Would Commit Future Generations

The proposed Project would result in growth and development on the Project site. The Project requires amendments to the General Plan and Zoning Ordinance to allow new office land use, which is currently prohibited. However, the proposed office use would occur within an urbanized area that would serve as an appropriate transition between heavier industrial uses and lower intensity open space, residential and waterfront development, and would not commit future generations to significant changes in land use that would be adverse.

6.2.2 Irreversible Changes from Environmental Accidents

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to the proposed Project. Furthermore, compliance with federal, State, and local regulations associated with hazards and hazardous materials identified in Section 4.7, *Hazards and Hazardous Materials*, would reduce to a less-than-significant level the possibility that hazardous substances associated with development of the Project site the potential for irreversible environmental damage from accidental spill or explosion.

6.2.3 Consumption of Non-Renewable Resources

Consumption of non-renewable resources includes conversion of agricultural lands, loss of access to mining reserves, and use of non-renewable energy sources. The Project site is located within an urban infill area of Redwood City; no agricultural land would be converted to non-agricultural uses. The Project site does not contain known mineral resources and does not serve as a mining reserve.

The proposed Project would require the use of energy, including energy produced from non-renewable resources. However, it would also incorporate energy-conserving features, as required by the all applicable City Codes and General Plan programs and policies as well as incorporated with the LEED Silver certification sought by the Project sponsor.

6.3 Cumulative Impacts

The approach used in this EIR for cumulative impact analysis is described in the introduction to Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*. The analysis of each environmental topic included in Chapter 4 evaluates possible cumulative impacts considering area-wide cumulative development in combination buildout of the proposed Project.

As noted below, under Section 6.4, *Significant and Unavoidable Environmental Impacts*, construction and operation of the Project in combination with development in the surrounding area would result in significant and unavoidable impacts under cumulative conditions related to air quality.

6.4 Significant and Unavoidable Environmental Impacts

In accordance with CEQA *Guidelines* sections 15064 and 15065, an EIR must identify impacts that would not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed Project, or by other mitigation measures that would be implemented.

Development facilitated by the Project would result in the following significant and unavoidable impacts that cannot be mitigated to a less-than-significant level.

Intersection Operations – Existing Plus Project (No Blomquist Extension)

- **Impact TRANS-1:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-2**: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-3:** The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the PM peak hour under Existing Plus Project without Blomquist Extension Conditions.

- **Impact TRANS-4**: The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operate at LOS F in the PM peak hour under Existing Plus Project Conditions without Blomquist Extension Conditions.

Intersection Operations – Existing Plus Project (with Blomquist Extension)

- **Impact TRANS-7:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #7).

- **Impact TRANS-8:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially (Intersection #11).

- **Impact TRANS-9:** The Project would add traffic to intersection #8 Blomquist Street / Seaport Boulevard / East Bayshore Road and would cause this intersection to degrade from acceptable operations of LOS C to unacceptable operations of LOS F in the AM and PM peak hours under Existing Plus Project Conditions.

- **Impact TRANS-10:** The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane which currently operates at LOS F in the PM peak hour under Existing Plus Project Conditions with Blomquist Extension Conditions.

Freeway Operations – Existing Plus Project (No Blomquist Extension)

- **Impact TRANS-12:** Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

  A. Southbound US 101 north of Whipple Avenue – AM peak hour
  C. Northbound US 101 south of Woodside Road – AM peak hour

- **Impact TRANS-13:** The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions.

Intersection Operations – Existing Plus Project (with Blomquist Extension)

- **Impact TRANS-14**: Project-generated traffic would cause the following mainline freeway segments to exceed their LOS standard:

  A. Southbound US 101 north of Whipple Avenue – AM peak hour
  C. Northbound US 101 south of Woodside Road – AM peak hour

- **Impact TRANS-15:** The Project would add traffic to the northbound US 101 off-ramp to Woodside Road and would cause this freeway ramp to exceed its capacity in the AM peak hour (V/C ratio = 1.03) under Existing Plus Project Conditions.

Cumulative Intersection Operations

- **Impact TRANS-22:** The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-23**: The Project would add a substantial number of vehicles to the Woodside Road corridor and cause vehicle delay to worsen substantially.

- **Impact TRANS-25:** The Project would contribute a considerable amount of traffic and increase intersection delay by more than five seconds in the PM peak hour for intersection #3 Bair Island Road / East Bayshore Road.

- **Impact TRANS-27:** The Project would add traffic to and would cause delay to worsen by more than five seconds at intersection #9 Seaport Boulevard / Lyngso Lane in the PM peak hour.

Cumulative Freeway Operations

- **Impact TRANS-28**: Under Cumulative Plus Project Conditions, the Project would add traffic volumes representing more than one percent of the segment's capacity to the following freeway segments exceeding their LOS standard and/or capacity without the Project:

  A. Southbound US 101 north of Whipple Avenue – AM and PM peak hours
  A. Northbound US 101 north of Whipple Avenue – PM peak hour
  B. Southbound US 101 south of Whipple Avenue – AM and PM peak hours
  C. Northbound US 101 south of Woodside Road – AM peak hour
  D. Southbound US 101 south of Woodside Road – PM peak hour

- **Impact TRANS-29:** Under Cumulative Plus Project Conditions, the Project would result in the addition of traffic volumes representing more than five percent of the

ramp's capacity to the northbound US 101 Off-Ramp to Woodside Road and southbound US 101 On-Ramp from Woodside Road, which already exceed the ramp capacity in the AM and PM peak hours, respectively under Cumulative Plus Project Conditions.

6.5 Effects Found Not To Be Significant

As required by CEQA, this EIR focuses on expected significant environmental effects (CEQA *Guidelines* Section 15143). In accordance with Section 15128 of the CEQA *Guidelines*, an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR.

A Notice of Preparation (NOP) was circulated on January 12, 2018 to request comments from the public and agencies about the scope of this EIR. Written comments received on the NOP were considered in the preparation of the final scope for this document and in the evaluation of the Project. An Initial Study was not prepared.

Because this EIR did not include the preparation of an Initial Study, all environmental topics in the CEQA Environmental Checklist (Appendix G of the CEQA *Guidelines*), except for the two exceptions listed below, have been fully analyzed in this document (Chapter 4).

The following two topics were excluded from detailed discussion in Chapter 4 of this EIR because it was determined during the EIR scoping phase that there would be no impacts associated with these topics.

6.5.1 Agricultural and Forestry Resources

The majority of developed land in the City of Redwood City, including the Project site, is designated by the California Department of Conservation's Important Farmland in California Map as urban and built-up land and other land (Department of Conservation, 2014). Property surrounding the Project site is also designated as urban and built-up land, or "other land" (not important farmland). Therefore, the Project would not directly or indirectly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; would not conflict with existing zoning for agricultural use, or a Williamson Act contract; and would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use. The Project would have no impact on agricultural resources.

Likewise, the Project would not cause rezoning of forest land, timberland, or timberland-zoned Timberland Production. Development facilitated by the Project would not result in the loss of forest land or convert forest land to non-forest use.

6.5.2 Mineral Resources

There are no known mineral resources within the Project site. The urbanization of the Project site over the past 40 years has resulted in extensive excavation of topsoil, and it is unlikely that any

valuable resources exist. Therefore, development facilitated by the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; and would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The Project would have no impact on mineral resources.

6.5.3 Substantial Displacement of Housing and People

The Project would not displace substantial numbers of existing housing units or people, necessitating construction of replacement housing elsewhere, since none exist on the Project site. The Project would have no impact on housing and people.

References

California Department of Conservation, Farmland Mapping and Monitoring Program, 2014. *San Mateo County Important Farmland Map, 2012* ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/smt12.pdf, California Department of Conservation, Division of Land Resource Protection, 2014.

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CHAPTER 7
Report Preparers

7.1 Lead Agency

City of Redwood City
Community Development Department
1017 Middlefield Road
Redwood City, CA 94063

Steven Turner, Planning Manager
Lisa Costa Sanders, Contract Planner

7.2 EIR Consultants

Environmental Science Associates (ESA)
180 Grand Avenue, Suite 1050
Oakland, CA 94612

Project Director: Hillary Gitelman
Project Manager: Crescentia Brown
Deputy Project Manager: Jill Feyk-Miney

ESA Technical Analysis

- *4.1 Aesthetics:* Crescentia Brown
- *4.2 Air Quality:* Jyothi Iyer (Health Risk), Jill Feyk-Miney (Air Quality); Chris Sanchez (Senior Review); Heidi Rous (Senior Review, Health Effects), Alan Sako and Tina Su (Health Effects)
- *4.3 Biological Resources:* Elizabeth Hill, Gerrit Platenkamp and Brian Pittman (Senior Review)
- *4.4 Cultural and Tribal Cultural Resources:* Heidi Koenig
- *4.5 Geology and Soils:* Jill Feyk-Miney, Eric Schniewind
- *4.6 Greenhouse Gas Emissions and Energy:* Jill Feyk-Miney, Chris Sanchez (Senior Review)
- *4.7 Hazards and Hazardous Materials:* Jill Feyk-Miney, Eric Schniewind
- *4.8 Hydrology and Water Quality:* Jennifer Brown, Matt Brennan
- *4.9 Land Use and Planning:* Crescentia Brown
- *4.10 Noise:* Yoshi Iyer, Chris Sanchez
- *4.11 Population, Housing and Employment:* Crescentia Brown
- *4.12 Public Services and Recreation Facilities:* Erin Higbee-Kollu, Crescentia Brown
- *4.13 Utilities and Service Systems:* Erin Higbee-Kollu, Crescentia Brown

4.14 Transportation and Traffic: (see *Transportation Consultant,* below)
5.0 Alternatives: Crescentia Brown
6.0 Growth Inducing: Crescentia Brown

ESA Production Services
Word Processing and Editing: Logan Sakai, Lisa Bautista
Graphics and Production: Ron Teitel

Transportation Consultant

Fehr & Peers
332 Pine Street, 4th Floor
San Francisco, CA 94104

Jane Bierstedt, PE Principal
Mike Hawkins, PE Senior Transportation Engineer/Planner
Matt Goyne, PE Associate-in-Charge
Loan Pham, Transportation Engineer/Planner